Survive Math Five

Multiplication and Division

Part 2
Division

BRITISH COLUMBIA

OPEN SCHOOL BC

Part 2

Division

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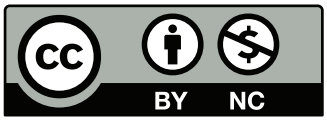

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Welcome to Multiplication and Division—Part 2

Introduction

Before you begin this set of lessons in division, your child is to be given a Pre-Test. It has been developed to test your child's existing knowledge of division skills and concepts and to give you an indication of the lesson where you should begin to work with your child.

What You Need

- Division Pre-Test and Answer Key

Pre-Test

Take out the Division Pre-Test that follows. Make sure your child is equipped with a pencil, eraser, and a quiet place to work.

Explain to your child that he or she is to complete as many questions as possible, but is to stop when the questions become too difficult for him or her to solve.

Don't help your child answer any of the questions. Your assistance will skew the test results, and give you an inaccurate picture of your child's skill level.

Place the test in front of your child. Make sure he or she understands the directions. Ask your child to begin the test and to complete as much of it as possible. There is no time limit.

Mark the Pre-Test. The Answer Key is in the back of this book. The results will tell you where to begin your next lesson.

If your child does not have automatic accurate recall of the basic division facts, you may wish to move on to today's lesson.

If not, spend some time reviewing the basic division facts with your child. Use the flashcards. You can flash the cards for your child to call out the answer, or your child can flash the cards for him or herself, piling the facts or she knows face down in one pile and the facts he or she doesn't know in a second pile.

Pre-Test—Division

Part A—Test of Basic Division Facts

A. Answer the following questions as quickly as possible. This is not a timed test.

1. $6 \div 3 =$ _____
2. $12 \div 6 =$ _____
3. $14 \div 7 =$ _____
4. $36 \div 9 =$ _____
5. $18 \div 3 =$ _____
6. $3 \div 3 =$ _____
7. $40 \div 8 =$ _____
8. $7 \div 1 =$ _____
9. $15 \div 3 =$ _____
10. $54 \div 6 =$ _____
11. $35 \div 5 =$ _____
12. $10 \div 2 =$ _____
13. $56 \div 7 =$ _____
14. $24 \div 3 =$ _____
15. $0 \div 6 =$ _____
16. $63 \div 9 =$ _____
17. $20 \div 5 =$ _____
18. $24 \div 6 =$ _____
19. $64 \div 8 =$ _____
20. $81 \div 9 =$ _____

Time: _____ seconds Correct Answers _____

1. $10 \div 2 =$ _____
2. $9 \div 3 =$ _____
3. $28 \div 7 =$ _____
4. $45 \div 9 =$ _____
5. $35 \div 5 =$ _____
6. $48 \div 8 =$ _____
7. $30 \div 6 =$ _____
8. $27 \div 9 =$ _____
9. $25 \div 5 =$ _____
10. $8 \div 2 =$ _____
11. $32 \div 8 =$ _____
12. $70 \div 10 =$ _____
13. $18 \div 9 =$ _____
14. $49 \div 7 =$ _____
15. $28 \div 4 =$ _____
16. $7 \div 1 =$ _____
17. $21 \div 3 =$ _____
18. $0 \div 5 =$ _____
19. $7 \div 1 =$ _____
20. $12 \div 6 =$ _____

Time: _____ seconds Correct Answers _____

Writing Division Sentences

B. Fill in the missing numbers.

1. $\square \div 2 = 2$

2. $14 \div \square = 7$

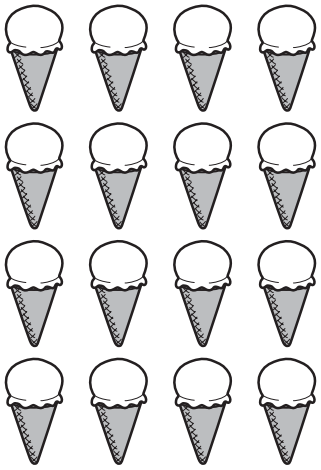
3. $\square \div 5 = 5$

4. $8 \div \square = 4$

5. $\square \div 4 = 8$

6. $\square \div 5 = 1$

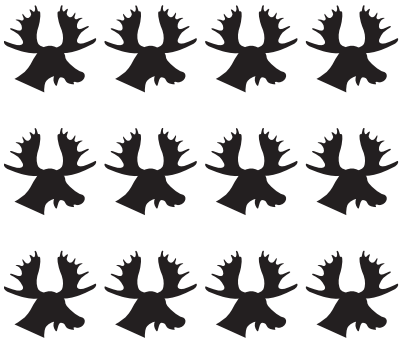
C. Write a division sentence for each question. Circle the equal groups before you write the sentence answer.

1. 

Divide into 4 equal groups.

Division Sentence:

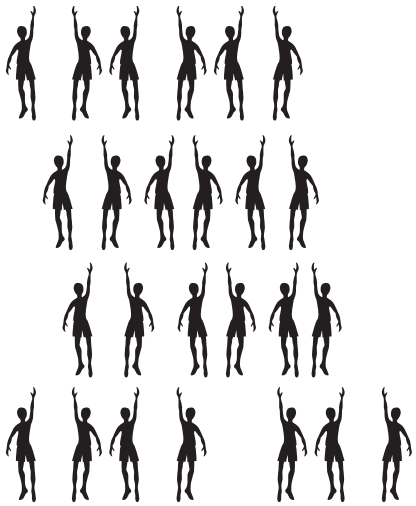
_____

2. 

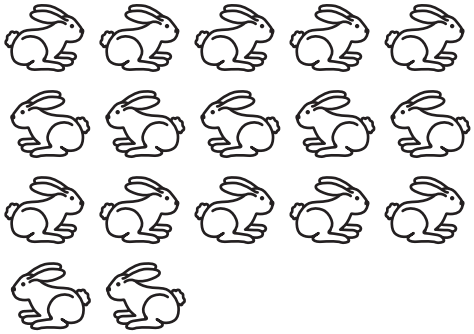
Divide into 2 equal groups.

Division Sentence:

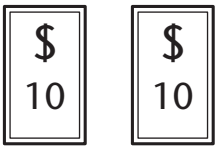
_____

3. 

25 basketball players are on 5 teams. How many players are on each team?

4. 

18 rabbits are in 2 pens. How many rabbits are in each pen?

5. 

$1 loonie

Shared by 3 people

Division sentence: _____

6.

$1 loonie
$1 loonie
$1 loonie

Shared by 7 people

Division sentence: _____

7.

Shared by 5 people

Division sentence: _____

D. Write two division sentences from each set of numbers in the boxes below.

1. | 6 | 6 | 1 |

_____

_____

2. | 5 | 35 | 7 |

_____

_____

3. | 9 | 63 | 7 |

_____

_____

These skills are covered in Division Lessons 1 and 2.

Part B—Writing Division Sentences in Two Ways

A. Name the parts of a division sentence.

1. _____ ← 45 ÷ 5 = 9 → _____

↓

_____

2. 5 → _____

_____ ← 6)30 → _____

B. Rewrite the division sentences using $\overline{)}$. Answer each question.

1. $45 \div 5 =$ _____

2. $15 \div 3 =$ _____

3. $36 \div 6 =$ _____

Review of the Division Facts from Six to Nine

C. Answer these questions as quickly and accurately as possible.

$24 \div 6 =$	$12 \div 6 =$	$48 \div 6 =$	$30 \div 6 =$
$6\overline{)42}$	$6\overline{)18}$	$6\overline{)36}$	$6\overline{)54}$
$56 \div 7 =$	$42 \div 7 =$	$28 \div 7 =$	$14 \div 7 =$
$7\overline{)63}$	$7\overline{)21}$	$7\overline{)49}$	$7\overline{)35}$
$56 \div 8 =$	$40 \div 8 =$	$24 \div 8 =$	$72 \div 8 =$
$8\overline{)16}$	$8\overline{)64}$	$8\overline{)32}$	$8\overline{)48}$
$54 \div 9 =$	$72 \div 9 =$	$36 \div 9 =$	$18 \div 9 =$
$9\overline{)81}$	$9\overline{)63}$	$9\overline{)27}$	$9\overline{)45}$

These skills are covered in Division Lessons 3 and 4.

Part C—Dividing Facts of Zero, One, Ten, and One Hundred Estimation

A. Divide

1. $10\overline{)5000}$
2. $100\overline{)9000}$
3. $1\overline{)240}$
4. $1200 \div 4 =$
5. $3 \div 0 =$
6. $3600 \div 6 =$
7. $260 \div 1 =$
8. $500 \div 10 =$
9. $100\overline{)400}$
10. $63 \div 0 =$

B. Estimate to the nearest multiple to complete these division questions.

1. Use your knowledge of basic facts to estimate the quotients.

   a. $6\overline{)59}$
   c. $2\overline{)19}$
   b. $7\overline{)41}$
   d. $9\overline{)38}$

2. Estimate to the nearest 10

e. $3\overline{)909}$ f. $128 \div 4 =$

3. Estimate to the nearest 100

g. $7\overline{)3717}$ h. $9\overline{)5877}$

These skills are covered in Division Lessons 5 and 6.

Part D—Dividing 2- and 3-Digit Numbers with No Remainders

A. Divide.

$2\overline{)28}$ $3\overline{)36}$ $3\overline{)69}$

$6\overline{)192}$ $8\overline{)96}$ $7\overline{)84}$

$2\overline{)468}$ $4\overline{)472}$ $5\overline{)585}$

$7\overline{)882}$ $3\overline{)609}$ $5\overline{)925}$

B. Solve the following problems. Show your work and write a statement.

1. 77 stamps are given to a stamp club. Each of the 7 members is to receive the same number of stamps. How many stamps will each member receive?

Statement: _____

_____

2. At a factory, 968 shirts were manufactured during an 8 hour shift. The same number was manufactured each hour. How many shirts were manufactured each hour?

Statement: _____

_____

These skills are covered in Division Lessons 8 and 9

Part E—Division with Remainders

A. Divide. Show any remainders.

1. $4\overline{)9}$
2. $3\overline{)17}$
3. $7\overline{)13}$
4. $8\overline{)59}$
5. $8\overline{)23}$
6. $9\overline{)81}$
7. $9\overline{)735}$
8. $8\overline{)649}$
9. $7\overline{)365}$
10. $3\overline{)959}$

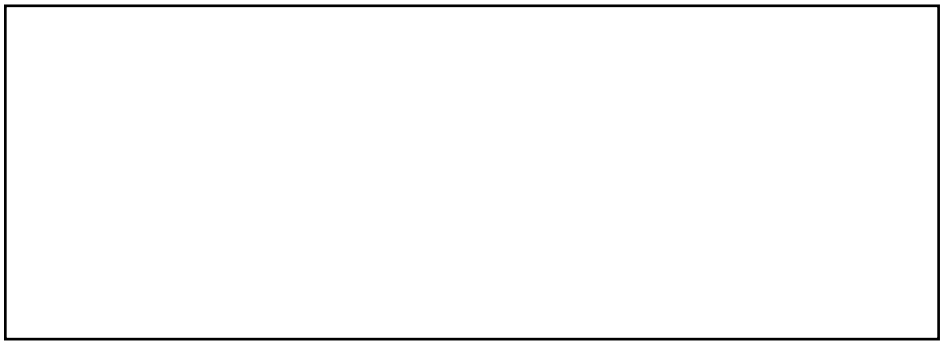
B. Solve these problems. Show your work and make a statement answer.

1. Each sandwich requires 2 pieces of bread. 15 slices of bread were in one loaf. How many sandwiches can be made with this loaf of bread? How many slices are left over?

Statement: _____

_____

2. Henry made 51 muffins. He sold the muffins in half-dozen bags. How many bags of muffins did Henry sell? How many muffins were left over?



Statement: _____

_____

C. Divide. Use multiplication to check your answers.

1. $2\overline{)86}$

Multiplication Check

2. $4\overline{)92}$

Multiplication Check

3. $5\overline{)25}$

Multiplication Check

4. $3\overline{)75}$

Multiplication Check

These skills are covered in Division Lessons 10, 11, and 12

Part F—Division with Zero in the Quotient, Estimating with Remainders, and Checking with Multiplication

A. Divide. Show your remainders.

1. $2\overline{)403}$
2. $6\overline{)608}$
3. $4\overline{)416}$
4. $7\overline{)706}$
5. $5\overline{)545}$
6. $3\overline{)613}$

B. Use your knowledge of multiplication facts to estimate these division sentences.

1. $73 \div 8 =$ 2. $29 \div 5 =$

3. $39 \div 7 =$ 4. $32 \div 6 =$

5. $49 \div 8 =$ 4. $56 \div 9 =$

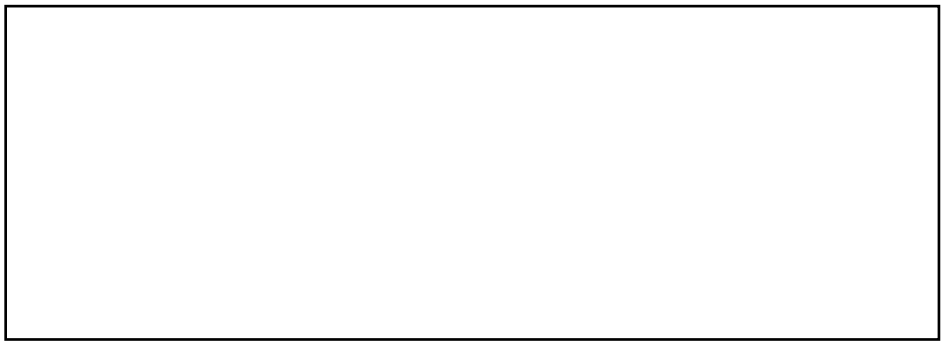
C. Find the nearest multiple to estimate the answer to these problems.

1. Socks are for sale for $3 a pair. How many pairs can you buy with $29?

Statement: _____

_____

2. George baked 48 cookies to sell at a bake sale. He wanted to put 9 cookies on a plate. How many plates of cookies will he have to sell?



Statement: _____

_____

These skills are covered in Division Lesson 13.

Part G—Division with 2-Digit Divisors

A. Find the quotients.

1. $46\overline{)988}$

2. $29\overline{)645}$

3. $42\overline{)633}$

4. $87\overline{)959}$

5. $34\overline{)6494}$

6. $79\overline{)8841}$

B. Round off the divisor and the number to be divided to the nearest 10. Estimate the related fact and write your answer in the proper place.

1. $659 \div 49 =$

2. $76\overline{)532}$

3. $83\overline{)762}$

C. Round off the divisor to the nearest 10 and the number being divided to the nearest 100. Estimate the related fact and write your answer in the proper place.

1. $62\overline{)4317}$

2. $45\overline{)3732}$

Lesson 18
Sharing and Placing Things Into Equal Groups

What You Need

- Practice sheet
- Teaching Aids
  - Division flashcards
  - Counters
- Blank paper or chalkboard

Exploring the Topic

In today's schools almost every grade school student learns to divide. You and your child may be surprised to learn that in the 16th Century schools, division was taught only at the university level.

In this set of lessons, your child will explore the last of the four basic operations, division. Division means to break up (or share) a large group of items into smaller equal groups.

Your child will begin work on writing division sentences (equations) based on sharing things equally and placing them into equal groups. Begin the lesson with a problem.

Parent Script:

You have learned to share many things such as your toys, games, and pizza. Division means to share a large group of items by putting them into smaller equal groups.

Read this word problem to me.

Mrs. Carry has 30 cookies. Mrs. Carry wants to share the cookies among 10 children. How many cookies will each child receive?

Think:

How many cookies?

How many children?

30 shared by 10

Division Sentence: 30 ÷ 10 = 3

Each child receives 3 cookies.

Now read this word problem aloud.

There are 20 students. 5 players are needed for each team. How many teams can be made?

How many equal groups of 5 are in 20? *(4 groups of 5 in 20)*

Write the division sentence for this problem on the line below.

_____ *(20 ÷ 5 = 4)*

There would be **4** teams.

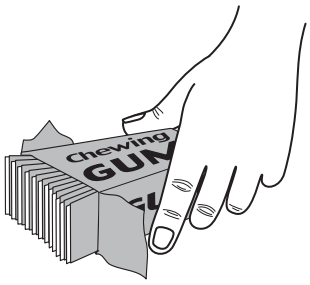
Division is when we put things into equal groups. Look at the illustration.

6 shoes = how many pairs?

Write the division sentence on the line. _____
(6 ÷ 2 = 3)

3 pairs of shoes

Division is when we share things. Look at this illustration.



9 pieces of gum in a package is shared by 3 girls.

How many pieces for each girl?

Write the division sentence on the line. _____
(9 ÷ 3 = 3)

3 pieces of gum for each girl

Good work. Now let's look at this question.

4 children are sharing these art supplies:

- 4 paint brushes
- 8 sketch pencils
- 12 fine felt pens

How many brushes for each child?

Think: 4 brushes for 4 children

Division Sentence: 4 ÷ 4 = 1

Finish the question by writing the next two division sentences for this question.

1. How many sketch pencils for each child?

   Think: _____

   (8 sketch pads for 4 children)

   Division Sentence: _____
   (8 ÷ 4 = 2)

2. How many fine felt pens for each child?

   Think: _____

   (12 fine felt pens for 4 children)

   Division Sentence: _____

   (12 ÷ 4 = 3)

Well done!

If your child does not have automatic accurate recall of the basic division facts he or she will need to practice. You will see game suggestions in the **Games** section that will make the practice more enjoyable.

Move on to the next section when your child is ready to work independently.

It's Your Turn

Have your child look at this section on the Lesson 18 Practice Sheet. Make sure your child understands the activity directions and ask your child to complete the section independently.

When your child has completed this section, mark his or her work. The Answer Key is at the back of this book. Help your child to do any needed corrections.

Lesson 19
Division Sentences

What You Need

- Practice sheets
- Teaching Aids
  Division Flashcards
- Blank paper or chalkboard

Warm-Up

Begin with a quick flashcard drill. Ask your child to take out the Lesson 19 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Multiplication tables are useful when learning division facts. For every two multiplication facts, there are two related division facts.

Parent Script:

I'm going to teach you how you can use the multiplication table for division.

Look at this multiplication table.

Remember that **rows** run across the chart and **columns** run up and down.

	X	0	1	2	3	4	5 ↓	6	7	8 ↓	9
	0	0	0	0	0	0	**0**	0	0	**0**	0
	1	0	1	2	3	4	**5**	6	7	**8**	9
	2	0	2	4	6	8	**10**	12	14	**16**	18
	3	0	3	6	9	12	**15**	18	21	**24**	27
	4	0	4	8	12	16	**20**	24	28	**32**	36
→	5	**0**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	45
	6	0	6	12	18	24	**30**	36	42	48	54
	7	0	7	14	21	28	**35**	42	49	56	63
Start →	8	**0**	**8**	**16**	**24**	**32**	**40**	48	56	64	72
	9	0	9	18	27	36	45	54	63	72	81

The arrows point to two multiplication facts.

8 x 5 = 40 and 5 x 8 =40

Run your finger along the row that starts with 8. Where it meets the column that begins with 5 you have the answer to the multiplication fact 8 x 5.

Run your finger along the row that begins with 5. Where it meets the column that starts with 8, you have the answer to 5 x 8.

You can also find two division facts for these numbers.

Let's use the chart to answer the question, "How many groups of 8 in 40?"

- Slide your finger across row 8 to 40.
- Now slide your finger up to the top of the table *(column 5)*
- 40 ÷ 8 = 5

The answer to a division question is a **quotient**.

You find a pair of quotients for 18. You can use your finger to help you track across the rows and columns.

Start at row 6.	Start at column 3.
Go across to 18.	Go down to 18.
Go up to 3.	Go across to 6.
18 ÷ 6 = 3	18 ÷ 3 = 6
Eighteen divided by 6 is 3.	Eighteen divided by 3 is 6.

Use the same steps to find a pair of quotients for 72, 30, and 8.

Answers: for 72, 8 and 9; for 30, 5 and 6; for 8, 2 and 4 or 1 and 8

You know there are always two multiplication sentences and two division sentences that form a fact family. When you draw illustrations of multiplication or division sentences you have rows and columns just like the multiplication chart.

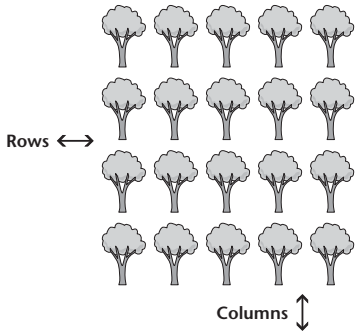
Look at this example:

In the orchard there are both rows and columns of apple trees.

There are 4 rows and 5 columns.

How many trees are in each row? *20 ÷ 4 = 5*

How many trees are in each column? *20 ÷ 5 = 4*



When you show things in columns and rows you are actually demonstrating two division sentences.

↕ 8 ÷ 4 = 2

↔ 8 ÷ 2 = 4

Does this remind you of multiplication? *(yes)*

You're correct!

Before we finish this part of the lesson, look at this fact family.

Multiplication

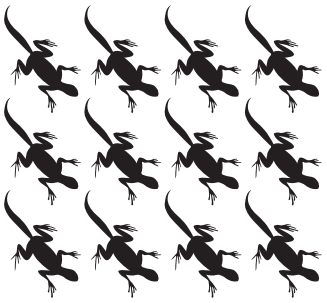
4 x 3 = 12

3 x 4 = 12

Division

12 ÷ 3 = 4

12 ÷ 4 = 3



Now it's time for you to practise what you have been learning.

It's Your Turn

Have your child look at this section on the Lesson 19 Practice Sheet. To make sure your child understands the activity directions, help him or her to get started. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing the **Challenge Yourself** activity. You will find the answers in the Answer Key.

Lesson 20
Writing Division Sentences Another Way

What You Need

- Practice sheets
- Teaching Aids
  - Division Flashcards
  - Calculator
- Blank paper or chalkboard

Warm-Up

Begin with a quick division flashcard drill or game. Ask your child to take out the Lesson 20 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Your child has already learned there are two ways to write a division sentence. Today he or she will review the two ways. Your child will also learn to think of division as repeated subtraction.

Parent Script:

You have already learned that division sentences can be written in two ways.

$$42 \div 6 = 7 \qquad 6\overline{)42}^{\,7}$$

The total amount being divided is called the **dividend**. The number that divides the dividend is called the **divisor**. You already know the answer is called the quotient. In the examples above, the divisor is **6** and the quotient is **7**.

You also know that division is the opposite operation to multiplication. If you know the basic facts in multiplication, you can use them to help you divide if you haven't already memorized all the division facts.

Another way to look at division facts is to think of division as repeated subtraction. If you had a total of 48 and a divisor of 8, you could subtract 8 repeatedly until you reach zero. The number of times you subtract groups of 8 is 6, the quotient (or answer).

Example: **48 ÷ 8 = 6** $8\overline{)48}$ *Division Sentence*

Repeated Subtraction:

	48		**24**
1*st*	**–8**	**4***th*	**–8**
	40		**16**
2*nd*	**–8**	**5***th*	**–8**
	32		**8**
3*rd*	**–8**	**4***th*	**–8**
	24		**0**

Take your calculator and try it for yourself. Use a total of **36** and divide it by **6** (into groups of 6).

$6\overline{)36}$

Try this:

- First you press the total **36**.
- Then you press – (minus) and then **6**.
- Repeat this until the calculator reads **0, counting the number of times you press the 6**. This will give you the quotient, in this case the number of times 6 was pressed. The quotient for this division sentence is 6.

If you know that 36 ÷ 6 = 6, then you know that 30 ÷ 6 = 5 (one 6 less than 36).

Have your child experiment with different division facts on his or her calculator to practise subtracting by the same number each time until he or she reaches zero. Use division facts such as:

42 ÷ 6
28 ÷ 7
18 ÷ 3
49 ÷ 7

When your child can successfully find the quotient for each set of numbers you provide, he or she is ready to move to independent practice.

It's Your Turn

Have your child look at this section on the Lesson 20 Practice Sheet. Make sure your child understands the activity directions by reading each set with him or her. Now ask your child to complete the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing the **Challenge Yourself** activity. You will find the answers in the Answer Key.

Lesson 21
Division Facts to 9

What You Need

- Practice sheets
- Teaching Aids
  Division Flashcards
- Blank paper or chalkboard

Warm-Up

Begin with a quick flashcard drill or game. Ask your child to take out the Lesson 21 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity. Your child may enjoy having you time the speed with which he or she completes the division facts.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

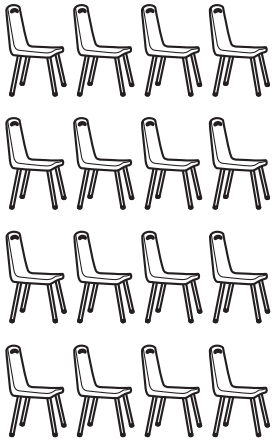
Exploring the Topic

Your child will review and work on activities for the division facts to nine.

Take out a sheet of paper before you begin to teach the lesson.

Parent Script:

Read the following problem to me.



16 chairs are in 4 equal rows. How many chairs are in each row.

Write the division sentence you need in order to solve the problem in two different ways. Write them on the sheet of paper.

Answer: $16 \div 4 = 4$

or

$4\overline{)16}$ (4)

You can check your division by multiplying. You multiply the divisor by the quotient. On the paper, check the division problem you just finished.

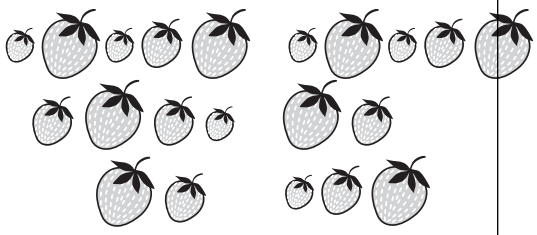
Now check these division answers to see if they are correct.

1. $5\overline{)30}$ (6) **2.** $8\overline{)84}$ (8) **3.** $6\overline{)42}$ (7)

(Answers: The first two are correct and in the third question the quotient should be 7.)

Read this problem aloud:

John picked strawberries for 35 straight days. How many weeks did he spend picking strawberries?



There is no divisor given. What should the divisor be? *(7 – 1 week)*

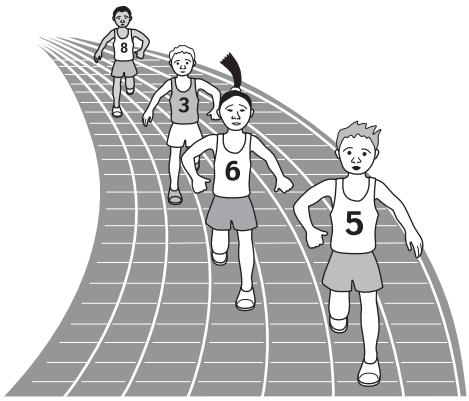
Solve the problem. Do your work on the sheet of paper. *(35 ÷ 7 = 5)*

Good work. Now check your answer. *(7 x 5 = 35)*

What would your statement or sentence answer say? *(John picked strawberries for 5 weeks.)*

Here is one final problem for you to solve. Read the problem to me and then find the answer. Do your work on the sheet of paper. Check your answer.

56 runners showed up for the 100-metre dash. There are 8 lanes on the track. How many heats (individual races) must be held so the everyone gets to run?



(Answer: 56 ÷ 8 = 7
Check: 8 x 7 = 56)

What would your statement or sentence answer say? *(Answer: 7 heats will be needed.)*

Well done. It's now time for you to work independently.

It's Your Turn

Have your child look at this section on the Lesson 21 Practice Sheet. To make sure your child understands the activity directions help him or her to get started. Now ask your child to complete the rest of the section independently. Because this activity is quite long, you may wish to divide it into two parts.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing this activity. You will find the answers in the Answer Key.

Lesson 22
Division Facts of 1, 10, and 100

What You Need

- Practice sheets
- Teaching Aids
  - Division Flashcards
- Blank paper or chalkboard

Warm-Up

If your child has not yet developed automatic recall of the basic facts in division, spend a few minutes each day on flash card drills or games. Ask your child to take out the Lesson 22 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Parent Script:

Dividing by ten is easy if the number you divide ends with a zero. You will quickly see the pattern. You will also see patterns when you divide by one or by zero. Let's get started by solving a word problem. Read the problem to me.

> *Lenny had $70 to buy tickets to a concert. Tickets were $10 each. How many tickets could Lenny buy?*

Write the division question on a sheet of paper. Don't forget to include the dollar signs. *(Answer $70 ÷ $10 = 7)*

Now write a statement. *(Lenny could buy 7 tickets.)*

Dividing in this question was easy because you divided 10 into a number that ended with a zero.

Find the pattern in these numbers.

80 ÷ 10 = 8	Check:	8 x 10 = 80
30 ÷ 10 = 3		3 x 10 = 30
900 ÷ 10 = 90		90 x 10 = 900
2000 ÷ 10 = 200		30 x 10 = 300
500 ÷ 100 = 5		5 x 100 = 500
7000 ÷ 100 = 70		70 x 100 = 7000
23 000 ÷ 100 = 230		230 x 100 = 23 000

A simple *trick* is to cross off an equal number of zeros from both the divisor and the number being divided. Compute the division fact and then add any remaining zeros to the answer. You then write the answer in the proper place.

For example, 7~~0~~ ÷ 1~~0~~ = 7 ÷ 1 = 7

Dividing by one is easy. See if you can see a pattern in these numbers.

9 ÷ 1 = 9

30 ÷ 1 = 30

7 ÷ 1 = 7

310 ÷ 1 = 310

42 186 ÷ 1 = 42 186

The rule when you divide by 1 is: the quotient (answer) is always the same as the number you divide (dividend).

Can you see a pattern in this set of division sentences?

0 ÷ 2 = 0

0 ÷ 10 = 0

0 ÷ 75 = 0

0 ÷ 100 = 0

How much is zero?

Can it be divided into equal groups?

What rule could you make for dividing zero?

Numbers that end in one or more zeros are called friendly numbers. They are easy to divide.

Look at this division sentence. 240 ÷ 8 = 30

You only need to know how many groups of 8 can be made from 24 to help find the answer.

Look at the multiplication sentence, 30 x 8 = 240. Can you see the connection? Good!

Read this word problem to me.

> *Four children collect 80 pop cans for recycling. If they share the cans equally, how many cans does each child receive?*

This is how this problem is solved.

$$4\overline{)8\text{ tens}}^{\,2\text{ tens}} \quad \textit{or} \quad 4\overline{)80}^{\,20}$$

Check: 4 x 20 = 80

Each child would receive 20 pop cans.

Read this final problem to me.

> *Seven men catch 1400 kg of fish. If the men share the catch equally,* how much fish does each receive?

This is how this problem is solved.

$$7\overline{)14\text{ hundreds}}^{\,2\text{ hundreds}} \quad \textit{or} \quad 7\overline{)1400}^{\,200}$$

Check: 200 x 7 = 1400

Each man would receive 200 kg of fish.

Now it's your turn to practise what we have been talking about.

It's Your Turn

Have your child look at this section on the Lesson 22 Practice Sheet. Make sure your child understands the activity directions by reading them with him or her. Also work through the question examples. Ask your child to complete the activities independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing the **Challenge Yourself** activity. You will find the answers in the Answer Key.

Lesson 23
Estimating Quotients

Children who have strong estimating skills will be able to complete this lesson in one sitting. If your child does not fully understand the concept of estimation, take two or even three sessions to work through the lesson. As Warm-Up activities to precede the second and third sessions, have your child review division facts through the use of flash cards or games such as Concentration.

What You Need

- Practice sheets
- Teaching Aids
  Division Flashcards
- Blank paper or chalkboard

Warm-Up

Spend a few minutes on flash card drills if your child is working toward automatic recall of the basic facts in division. Ask your child to take out the Lesson 23 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete each part of the activity.

When your child has completed the activity, correct it with him or her. Talk about your child's speed and accuracy on Activity B. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Your child has learned estimation skills for addition, subtraction, and multiplication. Estimation skills, however, are probably more important for division than for the other three operations.

Parent Script:

In this lesson you will estimate answers to division questions. There will be some leftover numbers. These leftovers are called **remainders**, but you will learn more about them later.

Part One

Let's begin by reading this word problem.

> *Jack wants to buy some tropical fish for his aquarium. The fish cost $6 each. If Jack has $38, what is the greatest number of fish he can buy?*

$$\$6\overline{)\$38}^{\,6} \qquad \textbf{Check:} \quad 6 \times \$6 = \$36$$

Jack can buy 6 fish.

How much money would he have left over? *($2)*

When you estimate in division it's usually best to round down rather than up.

If Jack had $50, what is the greatest number of fish he could purchase?

$$\$6\overline{)\$50}^{\,8} \qquad \textbf{Check:} \quad 8 \times \$6 = \$48$$

What if Jack had only $17?

$$\$6\overline{)\$17}^{\,2}$$

Jack could almost buy 3 fish. You can't buy a part fish so he could only buy 2 with $17. There are two 6s in 17.

Remember to round down in division so that you don't end up with part of a number.

Now you try. Look at question A. in **It's Your Turn**. Read the directions to me. Now let's look at the example. You are ready to answer the questions. If you need help, just ask.

Your child may have difficulty with estimating quotients. If so, give him or her a second set of questions based on another times table. Remind your child that estimating is a 'best guess' based on rounding the quotient down and having something left over.

Mark your child's work and return to **Part Two** of this lesson. The answers are in the Answer Key.

Part Two

Your child will now practise estimating quotients when dividing with larger numbers. Review the rules of rounding off numbers with him or her.

Rules for Rounding

When you round to 10, numbers ending in 0, 1, 2, 3, 4 are rounded down. Numbers ending in 5, 6, 7, 8, and 9 are rounded up.

When you round to the nearest 100, all numbers from 0 to 49 round down and all numbers ending in 50 to 99 round up.

When you round to the nearest 1000, all numbers from 0 to 499 round down and all numbers ending in 500 to 999 round up.

Before you begin, make sure your child has a calculator handy. You will show him or her how to use it to check his or her estimations.

Parent Script:
By following the rules for rounding, you can divide larger division questions by sight when the divisor and/or the number being divided is a multiple of 10. Good recall of your basic division facts will also help you.

We'll begin by working through this problem.

> *Mrs. Sanchez and 2 friends are thinking of joining together to help pay for a child in the neighbourhood to go to summer camp. They know the cost of the camp is $171. How much do they estimate each of them will pay?*

They think: $3\overline{)171}$

They round off to the nearest 10: $3\overline{)170}$

They know 17 tens divided by 3 is about 5 tens or 50: $\begin{array}{r} 50 \\ 3\overline{)170} \end{array}$

They estimate each will pay about: **$50**

Check with a calculator: **171 ÷ 3 = $57**

You follow the same steps to solve larger division questions. Numbers can be rounded out to the nearest hundred. This time we will read the problem and the written steps but I want you to write in the division questions and then your estimated answer. The problem:

> *A high school has 2816 students. It is divided into 4 different house teams. About how many students are there on each house team?*

You think:

You round off to the nearest 100:

You know 28 hundreds divided by 4 is about 7 hundreds or 700:

You estimate about: _____ students in each house team.

Check with your calculator: 2816 ÷ 4 =

(Your child should show the following:

You think: $4\overline{)2816}$

You round off to the nearest 100: $4\overline{)2800}$

You know 28 hundreds divided by 4 is about 7 hundreds or 700:

$$\begin{array}{r} 700 \\ 4\overline{)2800} \end{array}$$

You estimate about: *700 students in each house team.*

Check with your calculator: *2816 ÷ 4 = 704*

Now you will work on some estimation division by yourself. Look at questions in parts B. and C. in **It's Your Turn**. Read each set of directions to me. Answer the questions. If you need help, I'm here.

At this stage, your child may need additional help with the practice. Give assistance where needed.

When your child is finished, mark his or her work and return to **Part Three** in this lesson. The answers are in the Answer Key.

Part Three

Now that your child is comfortable estimating with one-digit divisors, teach him or her how to estimate two-digit divisor division questions. He or she will be able to check his or her work with a calculator.

Parent Script:

Now you are able to estimate answers to one-digit division questions by rounding off the number being divided to the nearest ten or hundred. It's time for you to try estimating division questions with two-digit divisors.

You follow exactly the same thinking you used in division with one-digit divisors. You round off the dividend to the nearest ten or hundred to estimate quotients (answers).

Look at this example: $67\overline{)487}$

To estimate the answer to this question you think:

***About** how many groups of 67 are there in 487?*

You round the divisor to the nearest 10 and the number being divided (the dividend) to the nearest 100.

You think of the related division fact and estimate: $70\overline{)500}$

You think of the true value of the numbers: $\begin{array}{r} 7 \\ 7\overline{)50} \end{array}$

5 hundreds divided by 70 is 0 hundreds. $\begin{array}{r} 0 \\ 70\overline{)500} \end{array}$

5 tens (50) divided by 70 is 0 tens. $\begin{array}{r} 0 \\ 70\overline{)500} \end{array}$

500 ones divided by 70 is about 7 ones. $\begin{array}{r} 7 \\ 70\overline{)500} \end{array}$

Here is another example:

$26\overline{)832}$

You round the divisor to the nearest 10, and the dividend to the nearest 100.

You think of the related division fact and estimate: $30\overline{)800}$

You think of the true value of the numbers: $\begin{array}{r} 3 \\ 3\overline{)8} \end{array}$

8 hundreds divided by 30 is 0 hundreds. $\begin{array}{r} 0 \\ 30\overline{)800} \end{array}$

80 tens divided by 30 are about 3 tens. $\begin{array}{r} 3 \\ 30\overline{)800} \end{array}$

0 ones divided by 30 is 0. $\begin{array}{r} 30 \\ 30\overline{)800} \end{array}$

You write the zero place holder in the ones' place.

You can check your estimate on the calculator by pressing:

832 ÷ 26 to read: **32**

This is reasonably close to the estimate of 30.

On a sheet of paper, write the following division questions. Walk your child through the steps to solving each of them. Have him or her round off the divisor and dividend to the nearest 10.

1. $76\overline{)364}$ **2.** $26\overline{)296}$

Answers:

1. $80\overline{)360}$ *4* *2.* $30\overline{)300}$ *10*

If your child understood the process and was able to answer the two questions, ask him or her to return to the Lesson 23 Practice Sheet and complete the questions in **Part Three**, **It's Your Turn**.

Make sure your child understands the activity directions before he or she completes the remaining questions.

When your child has completed this section, mark his or her work. The Answer Key is at the back of this book. Help your child to do any needed corrections.

There is no **Challenge Yourself** activity in this lesson.

Lesson 24
Review

What You Need
- Practice Sheets

In this lesson your child will complete a set of review questions. There are no **Warm-Up**, **Exploring the Topic**, or **Challenge Yourself** activities.

Before your child begins work on the review questions, make sure he or she understands the division skills and concepts taught in the previous lessons. If you know your child has difficulty with any skill or concept, go back and work on it. Do not give your child the review questions until you are confident he or she can complete them successfully.

It's Your Turn
Take out the Lesson 24 Practice Sheet, a pencil, and an eraser. Give your child a few minutes to look over the review questions. To make sure he or she understands the activity directions for each set of questions, read the directions and work through any sample questions with him or her.

The review is to be completed independently, but your child can take as much time as he or she needs to complete the work. If your child has difficulty answering a question, encourage him or her to move on to the next one. When your child has completed the review, ask him or her to check the answers for any obvious errors and make corrections.

Mark the review with your child. The answers can be found in the Answer Key. As you mark your child's work, you may notice a weak skill or concept that needs more practice. Work with your child on the skill or concept before moving on to the next division lesson.

Lesson 25
Division of 2-Digit Numbers With No Remainders

What You Need

- Practice sheets
- Teaching Aids
  - Division flashcards
- Deck of playing cards
- Blank paper or chalkboard

Warm-Up

Begin with a quick flashcard drill. Concentrate your child's attention on the division facts that continue to be difficult for him or her to master.

Ask your child to take out the Lesson 25 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. The Answer Key is at the back of this book.

Exploring the Topic

Your child may think that he or she already knows how to divide two digit numbers because he or she knows basic facts such 40 ÷ 8. The kind of division you will teach today, however, contains two steps.

Parent Script:

You will learn to divide 2-digit numbers today. This is called long division. You are working on division that contains two steps.

Look at this example:

52 ÷ 4 requires you to divide the tens first, then the ones, and any tens that are left. So, this is called 2-step division.

You still need to know your basic facts if you are going to be successful. Let's begin with the following problem. Read it aloud to me.

> *There are 69 raffle tickets remaining to be sold. 3 adults decide to buy all the tickets together. How many tickets will each adult buy?*

We write: $3\overline{)69}$

Step 1: Divide the tens.

$$\begin{array}{r} 2 \\ 3\overline{)69} \\ \underline{-6} \end{array}$$

Subtract 6 – 6 =

Step 2: Divide the ones

$$\begin{array}{r} 23 \\ 3\overline{)69} \\ \underline{-6\downarrow} \\ 09 \\ \underline{-9} \\ 0 \end{array}$$

Subtract 9 – 9 =0

Check: 23 x 3 = 69
(quotient x divisor)

There were no tens left over in that question so let's look at one that does have some tens left.

Watch:

$$\begin{array}{r} 14 \\ 3\overline{)42} \\ \underline{-3\downarrow} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

Think: 4 tens shared by 3 = 1 and 1 remainder

Think: Add the 2 ones to the 1 ten = 12
12 ones shared = 4

Check: 14 x 3 = 42

Now it's your turn.

Write down the following division question on a sheet of paper. Walk your child through the steps as he or she solves the question.

$6\overline{)90}$

This is an example of the way the question should look when solved.

```
 15        9 tens shared by 6 = 1
6)90
-6↓
 30        3 tens or 30 ones
-30        30 ÷ 6 = 5
  0

          Check: 15 x 6 = 90
```

Now write this second question on the paper and ask your child to work through it on his or her own.

$8\overline{)96}$

Make sure your child works carefully through each step.

As him or her to check the answer by multiplying the quotient by the divisor. His or her solution should look like this:

```
 12
8)96
-8↓
 16
-16
  0
```

Congratulate your child on his or her success with these questions.

If your child has difficulty with the concept of the steps in long division, make a simple chart such as the one below, to post in his or her work area.

$5\overline{)65}$ → $\begin{array}{r}1\\5\overline{)65}\end{array}$	1. Divide
$\begin{array}{r}1\\5\overline{)65}\\\underline{5}\end{array}$	2. Multiply
$\begin{array}{r}1\\5\overline{)65}\\\underline{5}\\1\end{array}$	3. Subtract
$\begin{array}{r}1\\5\overline{)65}\\\underline{5}\downarrow\\15\end{array}$	4. Bring down the next number and begin at #1 again.
$\begin{array}{r}13\\5\overline{)65}\\\underline{5}\downarrow\\15\\\underline{15}\\0\end{array}$	

Ask your child to try a few more questions, referring to the chart when necessary. Here are some question examples.

$2\overline{)34}$ $3\overline{)72}$ $5\overline{)85}$ $4\overline{)96}$

When your child is ready, move on the independent activities in **It's Your Turn**.

It's Your Turn

Have your child look at this section on the Lesson 25 Practice Sheet. Work through the examples and read each set of directions with your child. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing this activity. You will find the answers in the Answer Key.

Lesson 26
Division of 3-Digit Numbers Without Remainders

What You Need

- Practice sheets
- Teaching Aids
  - Division flashcards
- Blank paper or chalkboard

Warm-Up

Begin with a quick flashcard drill. Once again, concentrate on any of the basic division facts your child has not mastered.

Ask your child to take out the Lesson 26 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. The answers are in the Answer Key at the back of this book.

Exploring the Topic

Parent Script:

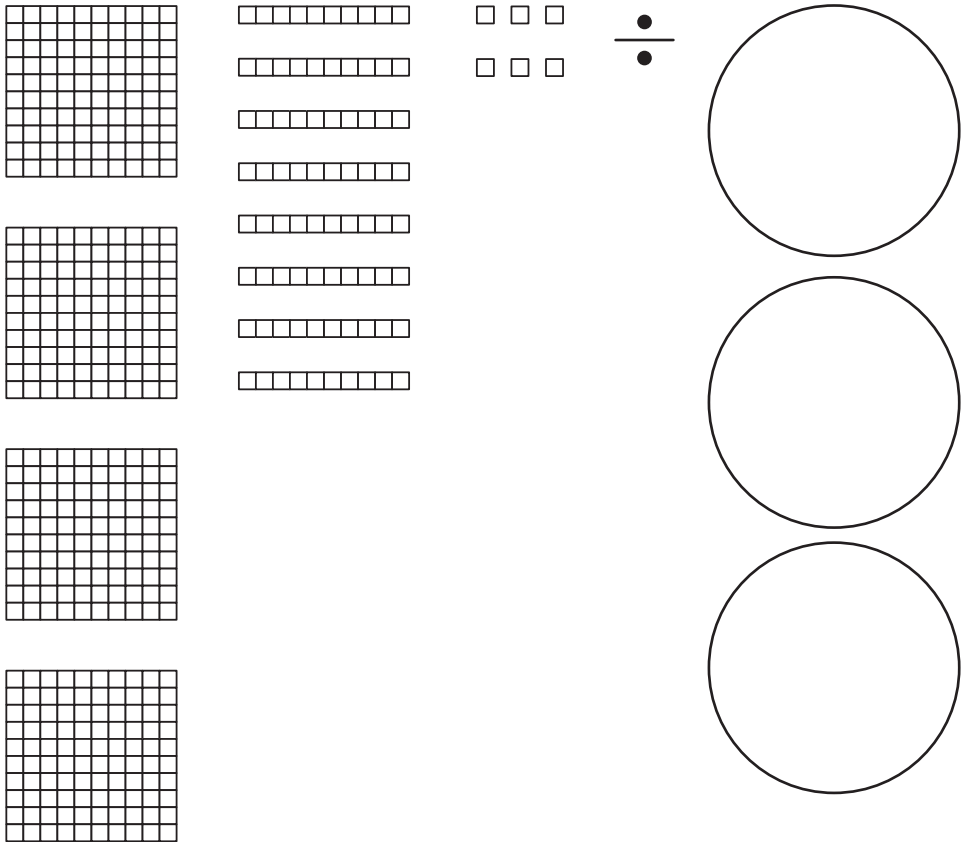
It's very important to understand what you are doing in long division. The following picture shows you a division question:

$3\overline{)486}$

When you solve division questions, you work in reverse. You begin with the largest place value first.

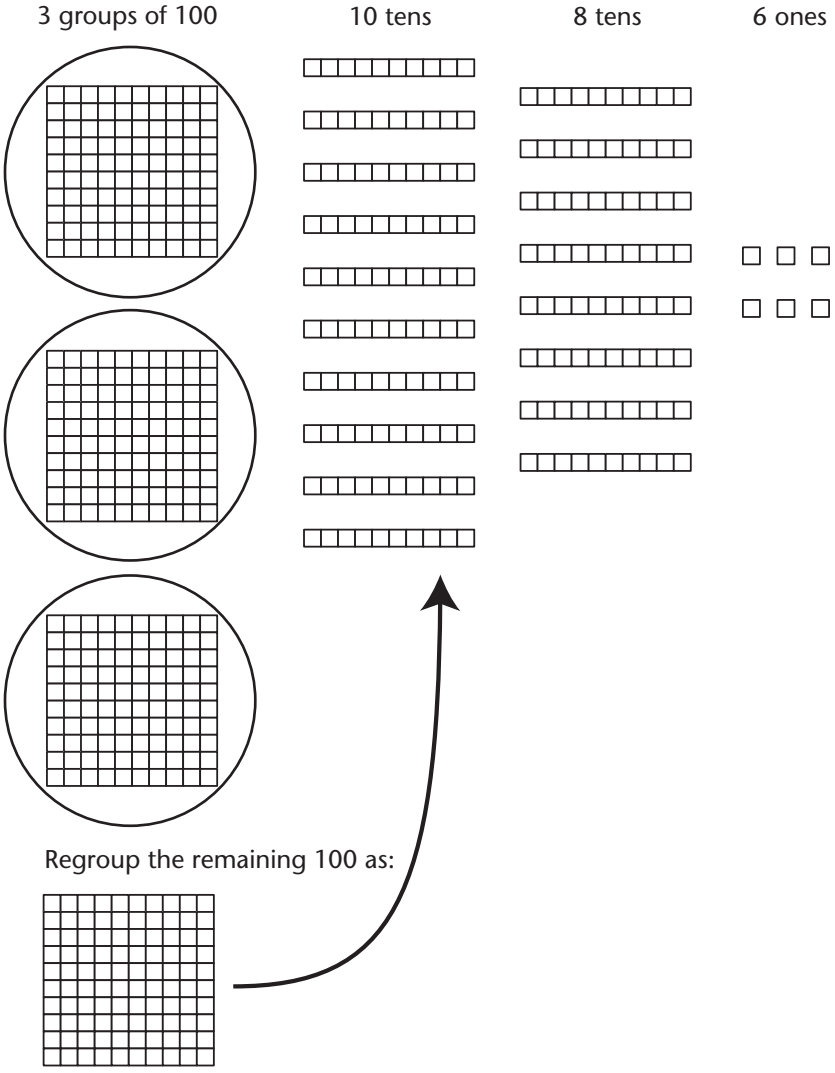
Look at this illustration. You are going to divide 486 blocks into 3 equal groups.

4 groups of 100 | 8 tens | 6 ones | 3 equal groups



Step 1:

In this question you divide the hundreds first. You divide 4 hundreds into 3 groups of 100. Regroup the leftover or remaining 100 into 10 groups of ten.



You can see that you put 100 in each group using a total of 300. To show this:

- write 1 above the hundreds' place to show you have put 100 in each group

$$\begin{array}{r} \mathbf{1} \\ 3\overline{)486} \end{array}$$

- write 300 (3 x 100) underneath to show 3 hundreds have been used.

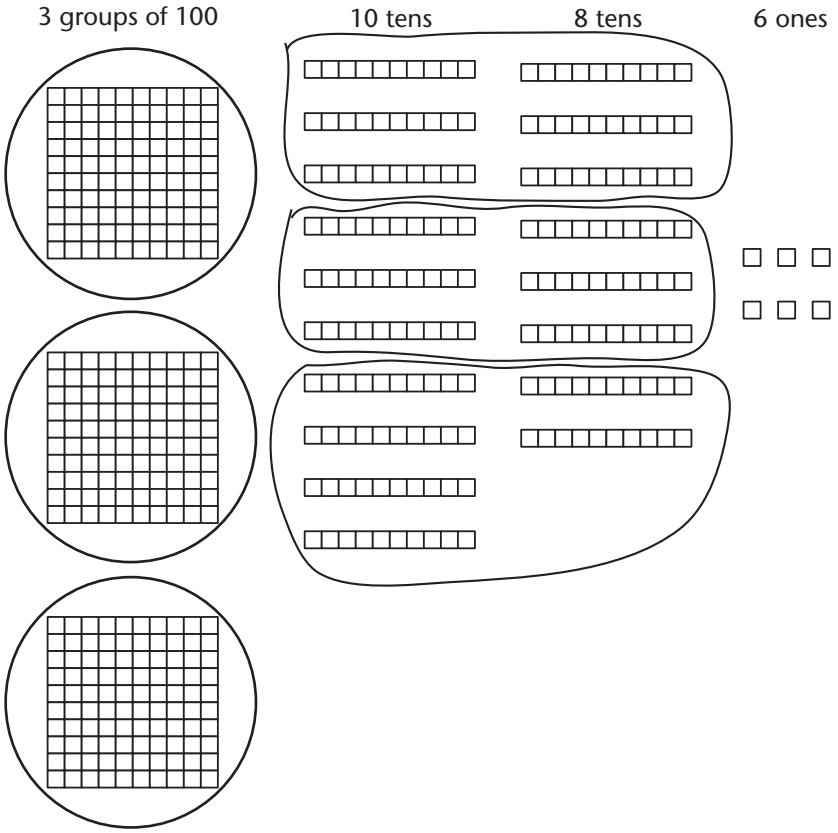
$$\begin{array}{r} 1 \\ 3\overline{)486} \\ \mathbf{300} \end{array}$$

- You subtract 300 from 486 to see how many blocks are left that need to be grouped equally.

$$\begin{array}{r} 1 \\ 3\overline{)486} \\ \underline{300} \\ \mathbf{186} \end{array}$$

Step 2:

Remember you have 3 groups with 1 hundred in each group. Show me where they are in the following illustration. Let's look at the 18 tens. When you divide them into 3 equal groups you can put 6 tens in each group.



To show this:

- write 6 above the tens' place to show you have put 6 tens in each group.

```
  16
3)486
  300
  186
```

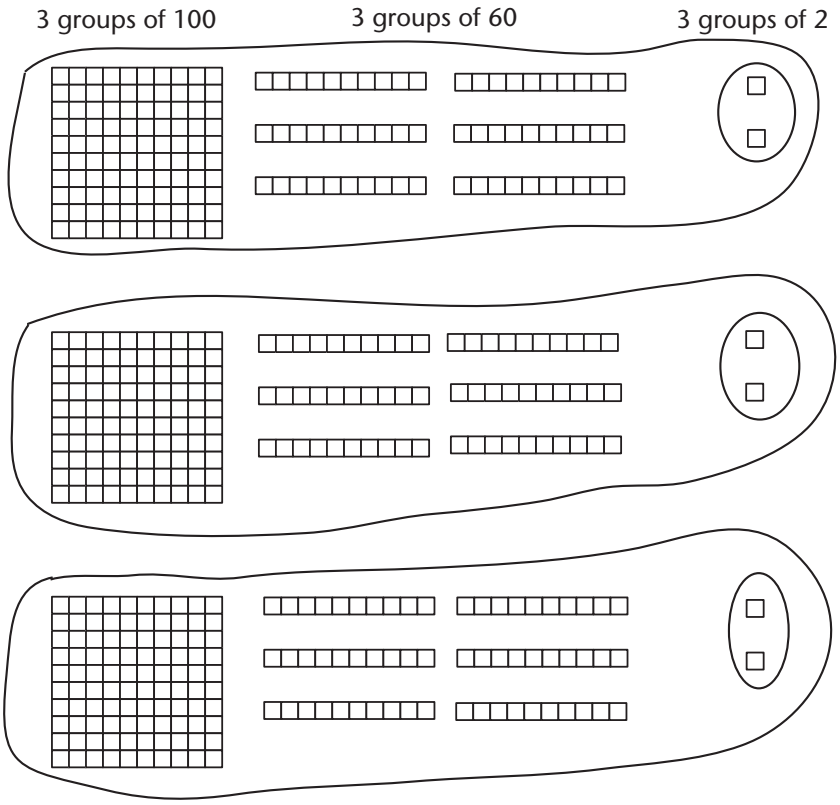
- write 180 (3 x 60) underneath to show that 3 groups of 6 tens (60) have been used.

```
  16
3)486
  300
  186
  180
```

- subtract 180 from 186 to see how many blocks are left that need to be equally grouped.

```
  16
3)486
  300
  186
  180
    6
```

Step 3: Now you need to group the 6 ones that are left into 3 equal groups. There will be 2 in each group.



To show this:

- write 2 above the ones' place to show you have put 2 ones in each group
- write 6 (3 x 2) underneath to show 3 groups of 2 ones (6) have been used.
- subtract 6 from 6 to see how many blocks are left.

$$\begin{array}{r} 162 \\ 3\overline{)486} \\ \underline{300} \\ 186 \\ \underline{180} \\ 6 \\ \underline{6} \\ 0 \end{array}$$

You have made 3 equal groups of 162 blocks.

Now let's walk through another division question without any block illustrations to help. Here's the question.

$$4\overline{)624}$$

Step 1:

You begin by grouping the **hundreds** equally. The short way to think is this:

- **How many 4s (really 4 hundreds) are there in 6?** *(6 hundreds)*
- You **estimate** 1 and write it above the hundreds' place.
- You multiply (4 x 100) and write 400 underneath.
- Subtract 400 from 624.

$$\begin{array}{r} 1 \\ 4\overline{)624} \\ \underline{400} \\ 224 \end{array}$$

Step 2:

Now you group the **tens** equally. Look at the 224 remaining to be grouped (200 = 20 tens + 2 tens = 22 tens).

The short way to think is this:

- **How many 4s are there in 22?**
- You **estimate** 5 (5 tens or 50) and write it above the tens' place.
- Multiply (50 x 4) and write 200 under 224.
- Subtract 200 from 224.

$$\begin{array}{r} 15 \\ 4\overline{)624} \\ \underline{400} \\ 224 \\ \underline{200} \\ 24 \end{array}$$

Step 3:

You group the **ones** equally. The short way to think is this:

- How many 4s are there in 24?
- You estimate 6 and write it above the ones' place.
- Multiply (6 x 4) and write 24 below 24.
- Subtract and write the zero.

$$\begin{array}{r} 156 \\ 4\overline{)624} \\ \underline{400} \\ 224 \\ \underline{200} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

You can see the answer is 156 with no remainder.

If your child needs more guided practice, provide him or her with division examples such as:

$3\overline{)120}$ $5\overline{)555}$ $6\overline{)690}$ $4\overline{)824}$

Ask your child to tell you what he or she is doing as he or her tries to solve each question. The simple long division chart mentioned in Lesson 25 should also help your child answer the questions. If your child understands the process of long division he or she is ready to work independently.

It's Your Turn

Have your child look at this section on the Lesson 26 Practice Sheet. To make sure your child understands the activity directions help him or her to get started. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing this activity. You will find the answers in the Answer Key.

Lesson 27
Division With Remainders

What You Need

- Practice sheets
- Teaching Aids
  - Division flashcards
- Blank paper or chalkboard
- Calculator

Warm-Up

At this point in this series of division lessons, your child should have automatic, accurate recall of all the basic division facts to nine times ten. If this is not the case, continue to work on drills and simple division games with your child.

If your child has mastered the basic division facts, use flash card drills from time to time to help him or her maintain an automatic response time. Ask your child to take out the Lesson 27 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Your child knows there can be **leftovers** in division. This and following lessons will focus on division with **remainders** (leftovers).

Parent Script:
You know that not all numbers can be divided into equal groups. In division, the number **left over** is called a **remainder**. The letter **R** is used in front of the number that represents the remainder.

We'll begin with the following problem. Read the problem to me. Then together we'll read through the steps that follow.

> *Josie has $50. She wants to buy some framed horse pictures which cost $7 each. How many pictures can Josie buy? How much money will she have left?*

Step 1: Estimate how many 7s are in 50

$$\$7\overline{)\$50}\quad 7$$

Step 2: Multiply 7 x 7 and print this number under the $50.

$$\begin{array}{r} 7 \\ \$7\overline{)\$50} \\ \underline{49} \end{array}$$

Step 3: Subtract 49 from 50 and print the answer under the 49.

$$\begin{array}{r} 7 \text{ R } \$1 \longrightarrow \text{remainder} \quad \text{Check } 7 \times 7 + 1 = 50 \\ \$7\overline{)\$50} \\ \underline{-49} \\ 1 \text{ (remainder)} \end{array}$$

Josie could buy 7 pictures and she would have $1 left over. The $1 left over in the quotient is called the remainder.

Now let's look at another division question. Once more we'll walk through the steps to solving it together.

Divide: **46 ÷ 8**

Estimate how many 8s are in 46. Then subtract until you have a remainder.

```
   4
8)46
 -32
  14  (← remainder)
```

Here your estimate was too low so your remainder is greater than 8. You can take one more 8 away from 46.

You must estimate again.

```
   5  R 6 ⟶ remainder        Check 8 x 5 + 6 = 46
8)46
 -40
   6 (remainder)
```

Now your remainder is less than 8.

It's important for you to remember:

1. A remainder in the quotient cannot be greater than the divisor.

```
                    3  R 5 ⟶  quotient
                                 remainder
divisor ⟶ 4)17
          -12
           5 (remainder)
```

The R (5) is greater than the divisor (4).

Corrected, the question should look like this.

```
   4  R 1
4)17
 -16
   1
```

2. You can always check your answer by multiplying the quotient by the divisor and adding the remainder.

```
   4  R 4    quotient x divisor + remainder
7)32
 -28                4  x  7  +  4  =  32
   4
```

Write the following questions on a sheet of paper or chalkboard and ask your child to answer them. Offer assistance and, if necessary, remind him or her of the steps: estimate, multiply, and subtract.

1. $6\overline{)11}$ **2.** $2\overline{)7}$ **3.** $7\overline{)40}$ **4.** $3\overline{)27}$

(Answers: 1. 1 R5 2. 3 R1 3. 5 R5 4. 9)

If your child was able to solve the questions he or she is ready for independent practice. If your child isn't ready, help him or her work through similar questions until he or she understands the steps and the importance of remainders.

It's Your Turn

Help your child understand each set of directions in this section on the Lesson 27 Practice Sheet. Now ask your child to complete the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing this activity. You will need to work through part of this section with your child. You will find the answers in the Answer Key.

Lesson 28
Dividing 2-Digit Numbers With Remainders

What You Need

- Practice sheets
- Blank paper or chalkboard
- Calculator

Warm-Up

Ask your child to take out the Lesson 28 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has finished, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

One of the important concepts in this lesson is that of having your child learn to check his or her work with a calculator. Begin this lesson by reviewing how to check a division answer.

Parent Script:

You know you can use your calculator find the answer to a division question when there are no remainders. Try checking 95 ÷ 3 on your calculator. What does your calculator say? *(It will probably read 31.6666)*

Your calculator will not give you a whole number remainder. You won't be able to tell if you have done a question correctly.

You check your work by multiplying the **quotient** by the **divisor** and adding the **remainder**.

For example:

$$\begin{array}{r} 31 \text{ R } 2 \\ 3\overline{)95} \\ -9 \\ \hline 05 \\ -3 \\ \hline 2 \end{array}$$

To check on your calculator, multiply 31 by 3. Add the remainder of 2 to get 95.

Now we are going to divide 2-digit numbers. Let's look at the first problem. Read it aloud.

Golf balls come in packages of 3. How many packages can be filled by 86 golf balls?

Think: 86 golf balls put into groups of three.

Write: $3\overline{)86}$

Step 1: Divide tens.

$$\begin{array}{r} 2 \\ 3\overline{)86} \\ -6 \\ \hline 2 \end{array}$$

Subtract.

Step 2: Divide ones.

$$\begin{array}{r} 28 \text{ R } 2 \\ 3\overline{)86} \\ -6 \\ \hline 26 \\ -24 \\ \hline 2 \text{ (remainder)} \end{array}$$

Subtract.

Check:

$$\begin{array}{r} {\scriptstyle 2} \\ 28 \\ \times 3 \\ \hline 84 + \text{remainder} \end{array}$$

$84 + 2 = 86$

The golf balls would fill 28 packages.

2 golf balls would be left over.

Let's look at a second problem to be sure you know the steps.

Read this problem to me.

Badminton birds come in cans with 5 birds in each can. How many cans can be filled by 98 birds?

What do you think? *(Answer: 98 birds put into groups of 5)*

How do you write that? *(Have child write division sentence like this* $5\overline{)98}$ *on a sheet of paper.*

Divide the tens.
Subtract.

Divide the ones.
Subtract.

Check your work by using your calculator. Remember you multiply the quotient by the divisor and add the remainder.

Your child's work should look like this:

```
                 19  R 3     Check:  19 x 5 + 3 = 98
Divide ones.   5)98
Subtract.      –5
               ---
Divide ones.    48
Subtract.      –45
               ---
                 3  (remainder)
```

What would your statements be?

(Answer such as: 19 cans can be filled from 98 birds. 3 birds are left over.)

If your child was successful in solving the last problem, he or she is ready to work independently. If your child needs more practice, provide him or her with further division questions that require dividing into tens and then into ones like those in the problems above. When he or she is ready, move on to the independent activities.

It's Your Turn

Have your child look at this section on the Lesson 28 Practice Sheet. To make sure your child understands each set of activity directions help him or her to get started on the first question in each part. Then have your child complete the rest of the section independently.

When your child has finished this section, mark his or her work. The Answer Key is at the back of the Parent Guide. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing this activity. Make sure your child understands each set of directions. He or she may need some assistance with the second part of the **Challenge Yourself** section. You will find the answers in the Answer Key.

Lesson 29
Dividing 3-Digit Numbers With Remainders

What You Need

- Practice sheets
- Blank paper or chalkboard
- Calculator

Warm-Up

Begin with a quick flashcard drill or game. Ask your child to take out the Lesson 29 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Parent Script:

You are now ready to work on three-step division questions. It's quite easy now that you know how to divide two-step questions with remainders.

First, let's work through a division problem where there is no remainder. Read the problem aloud.

> *Denise picked 524 cucumbers and placed them in 4 boxes. How many cucumbers were in each box?*

Think: 524 into 4 equal groups

Write and think: $\mathbf{4\overline{)524}}$

How many digits should there be in the answer? *(3)*

Step 1: Divide hundreds.
Subtract.

Step 2: Bring down tens.
Divide tens.
Subtract.

Step 3: Bring down ones.
Divide ones.
Subtract.

$$\begin{array}{r} 1 \\ 4\overline{)524} \\ -4 \\ \hline 1 \end{array} \qquad \begin{array}{r} 13 \\ 4\overline{)524} \\ -4\downarrow \\ \hline 12 \\ -12 \\ \hline 0 \end{array} \qquad \begin{array}{r} 131 \\ 4\overline{)524} \\ -4\downarrow \\ \hline 12 \\ -12 \\ \hline 04 \\ -4 \\ \hline 0 \end{array}$$

Check: 131 x 4 = 524

There were 131 cucumbers in each box.

Provide your child with pencil and paper. Work with him or her to work through the following problem.

Parent Script:

This time I want you to work through the division steps as we solve this problem together. Read the problem to me.

> *On the following day, Denise picked 471 cucumbers and placed them equally in 4 boxes. How many cucumbers were in each box?*

How many cucumbers were left over?

Think: you need to divide 471 into 4 equal groups.

Write down the division sentence.

Step 1: • Divide the hundreds.
• Subtract.

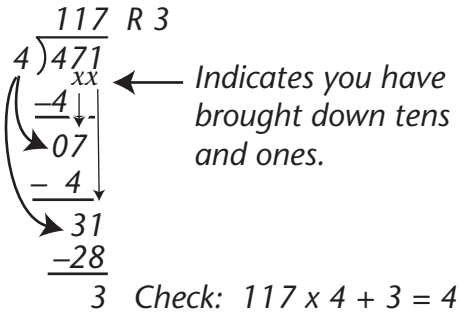
Step 2: • Bring down the tens. Instead of drawing an arrow, put a small x under the ten.
• Divide the tens.
• Subtract.

Step 3: • Bring down the ones. Put an x under the ones
• Divide the ones.
• Subtract.

Check your work on the calculator. Remember you need to multiply and then add.

Now finish by writing your sentence answers.

Your child's work should look like the following:



Denise put 117 cucumbers in each box.
There were 3 cucumbers left over.

Congratulate your child for his or her good work on the problem.

Finish this part of the lesson by showing your child what to do when the hundreds place number is smaller than the divisor.

Write this question on your child's paper. $9\overline{)765}$

Parent Script:
7 hundreds can't be divided equally into 9 groups so you need to imagine a 0 above the **hundreds'** place.

Divide the 76 tens by 9. Estimate and write an 8 above the **tens'** place.

Now finish the question.

Your child's work should like similar to this:

$$\begin{array}{r} 85 \\ 9\overline{)765} \\ \underline{720} \\ 45 \\ \underline{45} \\ 00 \end{array}$$

It's Your Turn
Have your child look at this section on the Lesson 29 Practice Sheet. To make sure your child understands the activity directions help him or her to get started by working together on the first question in each part. Now ask your child to complete the rest of the section independently.

Do not mark this section of work until after your child has checked his or her answers as part of the **Challenge Yourself** activity. Help your child to do any needed corrections.

Challenge Yourself
Ask your child to finish the lesson by completing this activity. He or she will review ways of checking his or her answers to division questions. Give your child assistance if needed. You will find the answers in the Answer Key.

Lesson 30
Division With Zero In the Quotient

What You Need

- Practice sheets
- Blank paper or chalkboard
- Calculator

Warm-Up

Ask your child to take out the Lesson 30 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activities.

When your child has completed the activities, correct them with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

It is often easy to misplace a zero in the quotient. Today's lesson will help your child look for zeros in the quotients.

Parent Script:

Thinking about how many digits are in a quotient is very important whenever zeros are in your answer. If you think you have a digit in the hundreds' place in the quotient, then there must be something in the tens' and ones' place—even if it is just a zero.

We're going to look at some division questions where zero plays an important part of the answer.

We'll begin with you reading aloud the following problem.

> *A tree planter is told to plant 630 seedlings in 6 equal rows. How many seedlings will there be in each row?*

Think: 630 put into 6 equal rows.

Write: $6\overline{)630}$

Step 1: Divide hundreds.

$$\begin{array}{r} 1 \\ 6\overline{)630} \\ \underline{-6} \end{array}$$

Step 2:

Bring down tens and divide

$$\begin{array}{r} 10 \\ 6\overline{)630} \\ \underline{-6\downarrow} \\ 03 \end{array}$$

Place 0 above tens' digit.

3 can't be shared by 6 equally

Check: 105 x 6 = 630

Step 3:

Bring down ones and divide.

$$\begin{array}{r} 105 \\ 6\overline{)630} \\ \underline{-6\downarrow\downarrow} \\ 030 \\ \underline{-30} \\ 0 \end{array}$$

If you estimate the number of digits in your answer it helps you to avoid missing a zero.

How many digits are in each quotient?

1. $\begin{array}{r} 1__ \\ 4\overline{)404} \\ \underline{-4} \end{array}$

3, because you can divide 4 hundreds by 4. You must have 3 digits.

2. $\begin{array}{r} 3 \\ 5\overline{)300} \end{array}$

2, because the 3 hundreds cannot be divided by 5. The first digit in the quotient should be placed above the tens digit.

3. $\begin{array}{r} 1 \\ 8\overline{)808} \end{array}$

3, because you can divide 8 hundreds by 8, so the first digit should be placed above the hundreds digit.

4. $\begin{array}{r} 5 \\ 7\overline{)350} \end{array}$

2, because the 3 hundreds cannot be divided by 7. The first digit in the quotient should be placed over the 5 in the tens place.

Let's look at all four questions in their complete form.

1. $4\overline{)404}$ = **101**

$-4\downarrow\downarrow$

0

-0

04

-4

0

2. $5\overline{)300}$ = **60**

-30

00

-0 **0** — **not necessary but don't forget the zero in the one's place**

3. $8\overline{)808}$ = 101

$-8\downarrow\downarrow$

0

-0

8

-8

0

4. $7\overline{)350}$ = 50

$-35\downarrow$

0

-0

0

It's Your Turn

Have your child look at this section on the Lesson 30 Practice Sheet. To make sure your child understands the activity directions help him or her to get started by working on the first question in each part of the activity. Ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself

Ask your child to finish the lesson by completing this activity. You will find the answers in the Answer Key.

Lesson 31
Division With a 2-Digit Divisor

What You Need

- Practice sheets
- Teaching Aids
  - Division flashcards
- Blank paper or chalkboard

Warm-Up

As this is the final lesson in division, begin with a quick flashcard drill to make sure your child has automatic recall of all the basic division facts.

Ask your child to take out the Lesson 31 Practice Sheet and complete the Warm-up activity. Read the directions with your child to ensure he or she understands what is required to complete the activity.

When your child has completed the activity, correct it with him or her. You will find the answers in the Answer Key at the back of this book.

Exploring the Topic

Today, your child will begin work on division that has 2-digit divisors.

Parent Script:
Earlier in Lesson 26, you had a look at the long form of division. This is where you write out the full place value.

For example:

$$\begin{array}{r} 54 \\ 6\overline{)324} \\ \underline{300} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

In most of your lessons, you have solved questions using the short form. In this form you have used the steps: divide, multiply, subtract, and bring down.

For example:

$$\begin{array}{r} 54 \\ 6\overline{)324} \\ \underline{30} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

Now you are going to learn 2-digit division using the short form.

Read the following problem aloud.

> Jill was paid $616 for a summer job at a local ranch. She was paid $28 a day. How many days did Jill work at the ranch?

In order to find the answer, you need to divide the total amount paid by the amount paid each.

You write the question this way: $28\overline{)616}$

In other words, how many groups (days) of $28 are there in $616? You need to use your knowledge of basic division facts and your estimation skills to find the answer.

Watch carefully as we work through the steps needed to solve the question.

Step 1: Divide the largest place first - in this example, hundreds.

Think 6 hundreds cannot be divided into 28 groups.

$$28\overline{)6}\quad 0$$

Step 2: Divide the next place.

Think 61 tens divided into groups of 28.

$$28\overline{)61}\quad 2$$

(If you round the 28 to 30, it will help you estimate.)

Estimate: (2 tens)

Multiply the divisor by the quotient and ***subtract*** to test your estimate.

$$\begin{array}{r} 2 \\ 28\overline{)61} \\ \underline{56} \\ 5 \end{array}$$

*If the remainder was greater than the divisor,

(28 in this case), then you would know your estimate was too low.*

Bring down the number in the ones' place.

$$\begin{array}{r} 2 \\ 28\overline{)616} \\ \underline{56}\downarrow \\ 56 \end{array}$$

Step 3: Divide the next place.

Think 56 ones divided into groups of 28.

Estimate: *(2 ones)*

$$\begin{array}{r} 22 \\ 28\overline{)616} \\ \underline{56} \\ 56 \end{array}$$

Multiply the divisor by the quotient to test your estimate.

$$\begin{array}{r} 22 \\ 28\overline{)616} \\ \underline{56} \\ 56 \\ \underline{56} \\ 0 \end{array}$$

We are going to review the steps using another example.

Here is the example. **$35\overline{)638}$**

Work through the question as I read the steps to you.

Step 1: Divide the largest place first.

You can see 6 hundreds cannot be divided into 35 groups.

Step 2: Divide the next largest place.

Think 63 tens divided into 35 groups.

Estimate: *(1 ten)*

Multiply and ***subtract*** to test your estimate.

Bring down the ones' place number.

Step 3: Divide the next largest place value.

Think: divide 288 ones into 35 groups.

Estimate: *(round off: 290 ÷ 40)*

Multiply and ***subtract*** to test your estimate.

Good for you!

Your child's work should look similar to this:

$$\begin{array}{r} 18 \\ 35\overline{)638} \\ \underline{35}\downarrow \\ 288 \\ \underline{280} \\ 8 \end{array}$$

When you divide numbers with four or more digits, you follow exactly the same steps. You always begin with the largest place value first and continue to the ones' place.

Guide your child as he or she works through the following questions. Have him or her write each question on a blank sheet of paper and work through the steps to solve each of them.

1. $26\overline{)468}$ **2.** $63\overline{)429}$ **3.** $12\overline{)8346}$ **4.** $68\overline{)9238}$

The answers are:

1. $26\overline{)468}$ → 18, 26, 208, 208, 0
2. $63\overline{)429}$ → 6, 378, 51
3. $12\overline{)8246}$ → 687, 72, 104, 96, 86, 84, 2
4. $68\overline{)9238}$ → 135, 68, 243, 204, 398, 340, 58

If your child is able to complete the questions with little or no guidance, have him or her work independently on the activity in **It's Your Turn**.

If your child needs more guided practice write a few more questions similar to those above for your child to try. It would be helpful for your child to refer to the division steps chart from Lesson 25.

It may take more than one day of practice before your child is comfortable working on two-digit divisor questions. When he or she is ready, ask him or her to try the questions in **It's Your Turn.**

It's Your Turn
Have your child look at this section on the Lesson 31 Practice Sheet. To make sure your child understands the activity directions help him or her work through the first question. Now ask your child to complete the rest of the section independently.

When your child has completed this section, mark his or her work. Help your child to do any needed corrections.

Challenge Yourself
Ask your child to finish the lesson by completing this activity. You may need to offer some assistance. You will find the answers in the Answer Key.

Lesson 32
Review

What You Need

- Practice sheets

In this lesson your child will complete a set of review questions. There are no Warm-Up, Exploring the Topic, or Challenge Yourself activities.

Before your child begins work on the review questions, make sure he or she understands the division skills and concepts taught in Lessons 25 to 31. If you know your child has difficulty with any skill or concept, go back and work on it. Do not give your child the set of review questions until you are confident he or she can complete it successfully.

It's Your Turn

Take out the Lesson 32 Practice Sheet, a pencil, and an eraser. Give your child a few minutes to look over the review questions. Read the activity directions with your child so he or she understands what to do in each part.

The review is to be completed independently, but your child can take as much time as he or she needs to complete the work. If your child has difficulty answering a question, encourage him or her to move on to the next one. When your child has completed the review, ask him or her to check the answers for any obvious errors and to make the corrections.

Mark the review with your child. The answers can be found in the Answer Key. As you mark your child's work, you may notice a weak skill or concept that needs more practice. Work with your child on the skill/concept before he or she takes the Mastery Test.

Mastery Test—Division

Today your child will complete a Mastery Test. The questions on this test will cover the skills and concepts that have been taught in this package. If you feel your child is not ready to take the test, make sure you review any skills or concepts your child may still have difficulty understanding before you administer it. Do not give your child this test unless you are confident he or she can complete it successfully.

Note: Your child will need more than one sitting to complete this test.

Take out the Mastery Test on the following pages and place it in front of your child. Explain to him or her that the test needs to be completed independently. Encourage your child to take a few moments to look over the questions. Ask your child if he or she understands what is expected. Give your child as much time as he or she needs to complete the test. If you see your child having any difficulty answering a question, tell him or her to leave that question and move on to the next one. When your child has completed all of the questions, encourage him or her to look over the work for any errors that may have been made. Mark the test with your child.

As you mark the test you will see the concepts or skills your child still has difficulty mastering and will need more practice. Make sure your child reviews these skills or concepts before moving on to the next Mathematics package.

Part A

1. Complete the basic facts equations.

$3\overline{)15}$	$6\overline{)24}$	$1\overline{)5}$	$8\overline{)32}$	$4\overline{)24}$
$5\overline{)35}$	$1\overline{)7}$	$6\overline{)12}$	$7\overline{)7}$	$9\overline{)27}$
$3\overline{)9}$	$4\overline{)16}$	$2\overline{)16}$	$3\overline{)21}$	$1\overline{)9}$
$8\overline{)48}$	$7\overline{)21}$	$5\overline{)45}$	$9\overline{)45}$	$6\overline{)0}$
$9\overline{)63}$	$4\overline{)0}$	$3\overline{)27}$	$7\overline{)35}$	$8\overline{)64}$

2. Write two division sentences from each set of numbers.

a. 6, 48, 8 _____ _____

b. 7, 35, 5 _____ _____

3. Name the parts of this division question.

10 → _____

_____ ← $5\overline{)50}$ → _____

Part B

1. Divide.

a. $4000 \div 10 =$ b. $100\overline{)700}$

c. $367 \div 1 =$ d. $7\overline{)4900}$

e. $45 \div 0 =$ f. $640 \div 8 =$

2. Complete each of the following questions. Show any remainders.

a. $8\overline{)96}$ b. $9\overline{)315}$ c. $4\overline{)97}$ d. $7\overline{)962}$

e. $4\overline{)127}$ f. $5\overline{)86}$ g. $7\overline{)784}$ h. $3\overline{)81}$

i. $8\overline{)296}$ j. $2\overline{)47}$ k. $6\overline{)224}$ l. $4\overline{)72}$

m. $3\overline{)82}$ n. $5\overline{)653}$ o. $6\overline{)462}$ p. $6\overline{)72}$

3. Divide. Check by multiplying.

a. $5\overline{)\$6.75}$ b. $7\overline{)\$78.47}$ c. $4\overline{)\$21\,452}$

c. The Smith's new car cost \$21 452. It took them 4 years to pay for the car. How much did they pay each year?

Statement: _____

_____

Part C

1. Divide:

a. $4\overline{)120}$ b. $9\overline{)270}$ c. $2\overline{)100}$

d. $7\overline{)5600}$ e. $5\overline{)4500}$

2. Divide. Show remainders where necessary.

a. $2\overline{)204}$ b. $7\overline{)630}$

c. $8\overline{)407}$ d. $5\overline{)505}$

Part D

1. Estimate the largest quotient for each question.

   a. $2\overline{)13}$ b. $3\overline{)29}$ c. $4\overline{)18}$

   d. $51 \div 7 =$ e. $17 \div 9 =$ f. $17 \div 9 =$

2. Round the dividend to the nearest 10 and estimate the quotient. Show your work.

   a. $9\overline{)441}$ b. $8\overline{)272}$ c. $5\overline{)155}$

3. Estimate by rounding off to the nearest 100. Show your estimation.

   a. $9\overline{)819}$ b. $212 \div 4 =$

c. $1778 \div 7 =$

d. $6\overline{)2124}$

4. Estimate the quotients. Round the dividends and divisors to the nearest 10's or 100's. Show your estimations.

a. $61\overline{)325}$

b. $64\overline{)5632}$

Part E

1. Divide. Check each answer with your calculator.

a. $14\overline{)84}$

b. $32\overline{)836}$

c. $36\overline{)672}$

d. $45\overline{)810}$ e. $42\overline{)8956}$

2. Before solving these problems, think of the key words and phrases in the problems. Read each problem carefully. Show all your work and include a statement answer.

   a. April has 30 days. How many full weeks are in April? How many days are left over.

Statement: _____

_____

b. Some children rolled 27 large snowballs to make some snowmen. Each snowman needs 3 snowballs. How many snowmen can be made? How many snowballs will not be needed?

Statement: _____

_____

c. Jerry has 15 bicycle wheels. How many bicycles can he make with these wheels? How many wheels will be left over?

Statement: _____

_____

3. Circle the unnecessary information and then solve the problems. Show all your work and include a statement answer.

   a. Harley had $9. He bought potato chips for $1.25 and 2 cans of soda pop at 85¢ each. How much money did Harley spend?

   Statement: _____

   _____

   b. Lillie's Bakery hires 5 girls or boys to work on their busiest day, Saturday. If the bakery is open for 8 hours and $150 is taken in each hour, how much money is taken altogether?

   Statement: _____

   _____

Part 2
Division

Practice Sheets

Lesson 18
Sharing and Placing Things Into Equal Groups

It's Your Turn

A. Ask your parent to time you as you complete these questions.

1. $54 \div 6 =$
2. $28 \div 7 =$
3. $15 \div 5 =$
4. $32 \div 8 =$
5. $36 \div 6 =$
6. $27 \div 9 =$
7. $24 \div 4 =$
8. $45 \div 5 =$
9. $21 \div 3 =$
10. $24 \div 8 =$

If you answered these in 30 seconds or less, you've done very well.

B. Write a division sentence for each question.

Sharing the Profits

If the profits are shared among 3 children, what will each child receive on:

Kool Aid Profits	
Thursday	$6
Friday	$12
Saturday	$24
Sunday	$15

Example: Thursday $6 ÷ 3 = $2

1. Friday _____
2. Saturday _____
3. Sunday _____

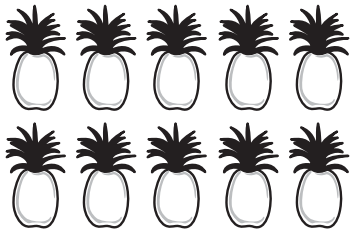
C. Putting Things in Groups

Write a division sentence for each question and group by circling before writing the answer.

Example:
14 glasses are in 7 boxes.
How many glasses are in each box?

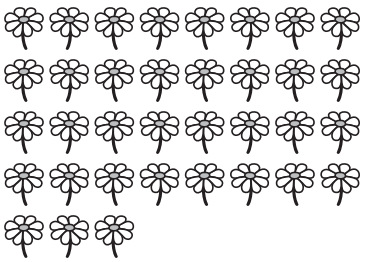
Think: how many groups of 2 in 14?
Write: 14 ÷ 2 = 7
Sentence Answer: There are 2 glasses in each box.

1. 10 pineapples are in 5 bags. How many pineapples are in each bag?



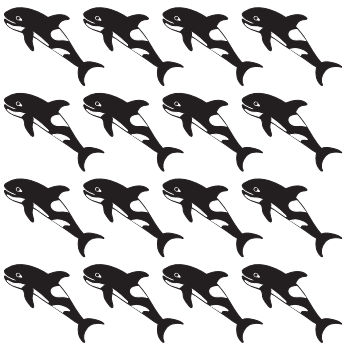
_____

2. 35 flowers are in 7 bunches. How many flowers are in each bunch?



_____

3. 16 whales are in 4 pods. How many whales are in each pod?



Lesson 19
Division Sentences

Warm-Up

Fill in the missing number for each fact below.

1. 7 x ☐ = 56
2. 4 x ☐ = 28
3. ☐ x 3 = 30
4. ☐ x 5 = 5
5. ☐ x 7 = 0
6. 9 x ☐ = 81
7. ☐ x 4 = 32
8. ☐ x 6 = 36
9. 5 x ☐ = 35
10. ☐ x 1 = 9

It's Your Turn

x	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

A. Use the multiplication table to work through each question. Write where you start on the table.

Example: 15 ÷ 5 = You can start at column 5 or row 5.
15 ÷ 3 = You can start at column 3 or row 3.

1. 24 ÷ 8 _____

2. 63 ÷ 7 _____

3. 30 ÷ 5 _____

B. Use the multiplication table to answer each of these questions. Write how far across you go for each question.

Example: 15 ÷ 5 = Start at row 5.
Go to 15.

1. 24 ÷ 8 _____
2. 63 ÷ 7 _____
3. 30 ÷ 5 _____

C. Use the multiplication table to solve each of these questions.

Example: 15 ÷ 5 = 3 Start at row 5.
Go to 15.
Up to 3.

1. 24 ÷ 8 _____
2. 63 ÷ 7 _____
3. 30 ÷ 5 _____

D. Divide. Use the table if necessary.

1. 49 ÷ 7 = _____
2. 12 ÷ 6 = _____
3. 20 ÷ 4 = _____
4. 81 ÷ 9 = _____
5. 14 ÷ 2 = _____
6. 40 ÷ 8 = _____
7. 27 ÷ 3 = _____

8. $64 \div 8 =$ _____

9. $6 \div 3 =$ _____

10. $7 \div 7 =$ _____

E. Write 2 division sentences for each diagram.

1. XXX
XXX
XXX _____
XXX _____

3. XX
XX
XX _____
XX _____

2. XXXXX _____
XXXXX _____

4. XXXX _____
XXXX _____
XXXX
XXXX

F. Draw a diagram showing rows and columns for each division sentence. Then write the related division sentence.

Example: 10 ÷ 2 = 5
xxxxx
xxxxx
10 ÷ 5 = 2 (related division sentence)

1. $16 \div 8 = 2$

_____

2. $12 \div 2 = 6$

_____

3. $21 \div 7 = 3$

_____

4. $9 \div 3 = 3$

_____

5. $32 \div 8 = 4$

_____

6. $30 \div 5 = 6$

_____

Challenge Yourself

A. Write two division and two multiplication sentences for each picture.

Example:

xxxxx
xxxxx
xxxxx
xxxxx

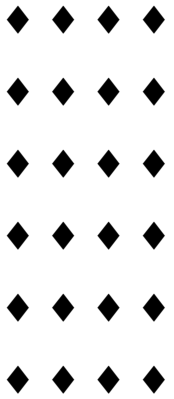
4 x 5 = 20
5 x 4 = 20
20 ÷ 5 = 4
20 ÷ 4 = 5

1. ♠ ♠ ♠ ♠ ♠ ♠
   ♠ ♠ ♠ ♠ ♠ ♠

_____
_____
_____
_____

2. ♣ ♣ ♣ ♣ ♣
   ♣ ♣ ♣ ♣ ♣
   ♣ ♣ ♣ ♣ ♣

_____
_____
_____
_____

3. 

_____
_____
_____
_____

4.

_____
_____
_____
_____

B. Complete these multiplication and division sentences.

1. _____ x 3 = 18 18 ÷ 3 = _____
2. _____ x 6 = 24 24 ÷ 6 = _____
3. _____ x 9 = 54 54 ÷ 9 = _____
4. _____ x 8 = 72 72 ÷ 8 = _____
5. _____ x 5 = 40 40 ÷ 5 = _____
6. _____ x 3 = 27 27 ÷ 3 = _____
7. _____ x 7 = 42 42 ÷ 7 = _____
8. _____ x 9 = 81 81 ÷ 9 = _____
9. _____ x 8 = 64 64 ÷ 8 = _____
10. _____ x 9 = 63 63 ÷ 9 = _____

Lesson 20
Writing Division Sentences Another Way

Warm-Up

How many are in each group?

Example: 12 in 2 groups = *6*

1. 18 in 2 groups = _____
2. 25 in 5 groups = _____
3. 7 in 7 groups = _____
4. 6 in 3 groups = _____
5. 5 in 1 groups = _____
6. 20 in 5 groups = _____
7. 8 in 4 groups = _____
8. 9 in 3 groups = _____

It's Your Turn

A. What is the quotient in the following division sentences?

1. $72 \div 9 = 8$ _____
2. $48 \div 8 = 6$ _____
3. $3\overline{)12}$ _____ (quotient: 4)
4. $7\overline{)42}$ _____ (quotient: 6)
5. $6\overline{)48}$ _____ (quotient: 8)

B. What is the divisor in the following division sentences?

1. $56 \div 8 = 7$ _____

2. $24 \div 6 = 4$ _____

3. $21 \div 7 = 3$ _____

4. $5\overline{)30}$ _____ 5. $2\overline{)14}$ _____

6. $3\overline{)27}$ _____

C. Write out these division sentences as repeated subtraction. Use your calculator if you wish.

Example: $63 \div 9 = 7$

$63 - \mathbf{9} = 54 - \mathbf{9} = 45 - \mathbf{9} = 36 - \mathbf{9} = 27 - \mathbf{9} = 18 - \mathbf{9} = 9 - \mathbf{9} = 0$

1. $42 \div 7 = 6$

_____

2. $24 \div 3 = 8$

_____

3. $28 \div 7 = 4$

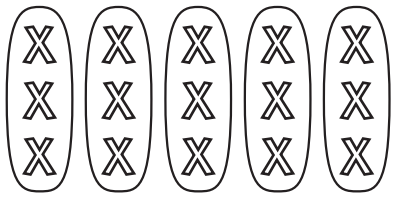
_____

D. Complete the following division sentences. Use the multiplication table from your last lesson if you need help with the division facts.

1. $63 \div 9 =$ _____
2. $5\overline{)40}$ _____
3. $8\overline{)48}$ _____
4. $81 \div 9 =$ _____
5. $36 \div 9 =$ _____
6. $15 \div 3 =$ _____
7. $56 \div 7 =$ _____
8. $42 \div 7 =$ _____
9. $64 \div 8 =$ _____
10. $7\overline{)49}$ _____

Challenge Yourself

A. Write two multiplication sentences and two division sentences to go with each of the following arrays (diagrams).

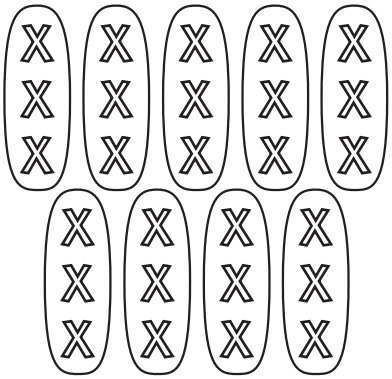
1. 

_____

_____

_____

_____

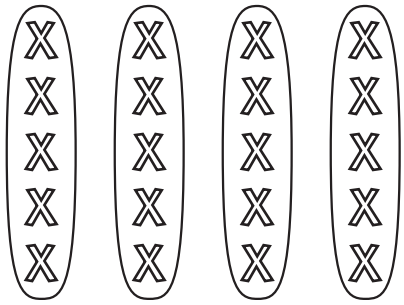
2. 

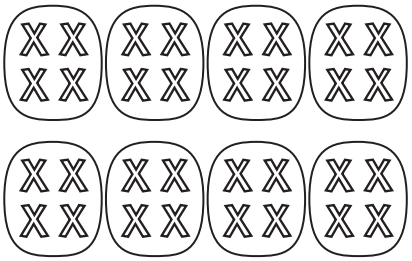
_____

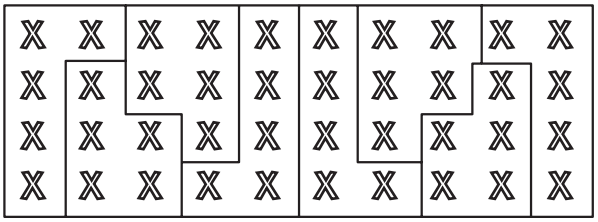
_____

_____

_____

3. 

4. 

5. 

B. Write each of the following multiplication sentences as two different division sentences.

1. 7 x 8 = 56 _____ _____
2. 9 x 5 = 45 _____ _____
3. 3 x 6 = 18 _____ _____
4. 9 x 4 = 36 _____ _____
5. 7 x 9 = 63 _____ _____

C. Answer these problems showing the correct division sentence and an answer statement.

1. A teacher had 48 cookies to put on 8 plates. How many cookies will go on each plate?

Statement: _____

_____

2. How many groups of 5 students each are there in a class tour of 35 students?

Statement: _____

_____

Lesson 21
Division Facts to 9

Warm-Up

Complete as quickly as possible. You can ask an adult track the time it takes you to complete the twenty questions.

1.	5 x 2 =	_____	11.	2 x 9 =	_____
2.	4 x 8 =	_____	12.	5 x 4 =	_____
3.	3 x 8 =	_____	13.	4 x 7 =	_____
4.	5 x 6 =	_____	14.	5 x 7 =	_____
5.	4 x 5 =	_____	15.	3 x 6 =	_____
6.	4 x 4 =	_____	16.	3 x 9 =	_____
7.	5 x 8 =	_____	17.	5 x 3 =	_____
8.	4 x 6 =	_____	18.	3 x 7 =	_____
9.	4 x 9 =	_____	19.	5 x 9 =	_____
10.	5 x 5 =	_____	20.	3 x 2 =	_____

It's Your Turn

A. Write two division facts using the three numbers given in each question below.

Example:

6
30
5

30 ÷ 6 = 5

30 ÷ 5 = 6

1. | |
|---|
| **10** |
| **2** |
| **5** |

_____

_____

2. | |
|---|
| **3** |
| **9** |
| **3** |

_____

_____

3. | |
|---|
| **9** |
| **36** |
| **4** |

_____

_____

B. Write the two multiplication sentences which prove the division was done correctly.

Example: **32 ÷ 4 = 8**

8 x 4 = 32
4 x 8 = 32

1. 18 ÷ 2 = 9

_____

_____

2. 6 ÷ 3 = 2

_____

_____

3. $24 \div 6 = 4$

4. $15 \div 5 = 3$

C. Complete the six times table below.

X	0	1	2	3	4	5	6	7	8	9	10
6											

Use the table above if you need help to answer the questions.

1. $24 \div 6 =$ _____
2. $54 \div 6 =$ _____
3. $60 \div 6 =$ _____
4. $36 \div 6 =$ _____
5. $12 \div 6 =$ _____
6. $42 \div 6 =$ _____

D. Complete the seven times table below. You may use the table to answer the questions below.

X	0	1	2	3	4	5	6	7	8	9	10
7											

1. $21 \div 7 =$ _____
2. $35 \div 7 =$ _____
3. $56 \div 7 =$ _____
4. $49 \div 7 =$ _____
5. $7 \div 7 =$ _____
6. $63 \div 7 =$ _____

E. Divide.

1. $14 \div 7 =$ _____
2. $6 \div 6 =$ _____
3. $7 \div 7 =$ _____
4. $28 \div 7 =$ _____
5. $36 \div 6 =$ _____
6. $35 \div 7 =$ _____
7. $18 \div 6 =$ _____
8. $42 \div 7 =$ _____
9. $48 \div 6 =$ _____
10. $63 \div 7 =$ _____

F. Complete the eight times table below.

X	0	1	2	3	4	5	6	7	8	9	10
8											

Use the table above if you need help to answer the questions.

1. $40 \div 8 =$ _____
2. $72 \div 8 =$ _____
3. $80 \div 8 =$ _____
4. $32 \div 8 =$ _____
5. $64 \div 8 =$ _____
6. $16 \div 8 =$ _____

G. Complete the nine times table below. You may use the table to answer the questions below.

X	0	1	2	3	4	5	6	7	8	9	10
9											

1. $27 \div 9 =$ _____
2. $63 \div 9 =$ _____
3. $81 \div 9 =$ _____
4. $45 \div 9 =$ _____
5. $9 \div 9 =$ _____
6. $72 \div 9 =$ _____

H. Fill the missing number in each question.

X	0	1	2	3	4	5	6	7	8	9	10
9											

If necessary, use the above table to help answer the following questions.

1. $27 \div 9 =$ _____
2. $63 \div 9 =$ _____
3. $81 \div 9 =$ _____
4. $45 \div 9 =$ _____
5. $9 \div 9 =$ _____
6. $72 \div 9 =$ _____

Challenge Yourself

Solve each problem. Show all your work in the box and write a statement (sentence answer) to answer each question.

1. Mary rides her bike 9 km (kilometers) to the lake. On the way home she takes a short cut that is only 8 km long. How many kilometers does she travel both ways?

Statement: _____

_____

2. A group of 8 children shared 80 jars of homemade jam they made as part of a class project. How many jars of jam did each child receive?

Statement: _____

_____

3. 54 Boy Scouts gathered for a jamboree. Large tents each held 9 boys comfortably. How many tents were needed for the boys?

Statement: _____

_____

Lesson 22
Division Facts of 1, 10, and 100

Warm-Up

Complete as quickly as you can.

1. 8 x 10 = _____
2. 20 x 1 = _____
3. 6 x 10 = _____
4. 10 x 0 = _____
5. 9 x 1 = _____
6. 5 x 10 = _____
7. 19 x 1 = _____
8. 12 x 10 = ____
9. 13 x 0 = _____
10. 4 x 1 = _____
11. 10 x 8 = _____
12. 80 x 6 = _____
13. 30 x 4 = _____
14. 50 x 6 = _____
15. 40 x 7 = _____
16. 100 x 8 = _____
17. 800 x 6 = _____
18. 300 x 4 = _____
19. 500 x 6 = _____
20. 400 x 7 = _____

It's Your Turn

A. Divide.

1. $7 \div 1 =$ ____
2. $15 \div 3 =$ ____
3. $0 \div 9 =$ ____
4. $10\overline{)60}$
5. $2\overline{)0}$
6. $12 \div 1 =$ ____
7. $0 \div 3 =$ ____
8. $60\overline{)0}$
9. $1\overline{)07}$
10. $100 \div 10 =$ ____
11. $50 \div 10 =$ ____
12. $6\overline{)0}$
13. $0 \div 50 =$ ____
14. $7\overline{)49}$
15. $500 \div 1 =$ ____
16. $1\overline{)120}$
17. $600 \div 10 =$ ____
18. $121 \div 1 =$ ____
19. $1000 \div 10 =$ ____
20. $1700 \div 10 =$ ____

B. Complete each question.

Example: **$50 \div 5 = ?$**

$= 5$ tens $\div 5 = 1$ ten

or $5\overline{)\mathbf{50}}$ **10**

1. $100 \div 2 =$

   $=$ _____ tens $\div 2 =$ _____ tens

   or $2\overline{)100}$

2. $160 \div 4 =$

   $=$ _____ tens $\div 4 =$ _____ tens

   or $4\overline{)160}$

3. $90 \div 3 =$
   $=$ _____ tens $\div 3 =$ _____ tens

   or $3\overline{)90}$

4. $250 \div 5 =$
   $=$ _____ tens $\div 5 =$ _____ tens

   or $5\overline{)250}$

C. Complete each question.

Example: **$1200 \div 2 = \underline{600}$**
$= 12$ hundreds $\div 2 = 6$ hundreds
or $2\overline{)1200}$ $\quad 600$

1. $2100 \div 3 =$
   $=$ _____ hundreds $\div 3 =$ _____ hundreds

   or $3\overline{)2100}$

2. $1500 \div 5 =$
   $=$ _____ hundreds $\div 5 =$ _____ hundreds

   or $5\overline{)1500}$

3. $1400 \div 7 =$
   $=$ _____ hundreds $\div 7 =$ _____ hundreds

   or $7\overline{)1400}$

4. $3500 \div 5 =$
   $=$ _____ hundreds $\div 5 =$ _____ hundreds

   or $5\overline{)3500}$

Challenge Yourself
You've learned the pattern for calculating division questions that have multiples of 10 and 100. Try solving these questions by sight. You will find the same pattern works for division questions that have multiples of 1000.

Check your sight division by multiplying the **quotient** and the **divisor**.

Example: 2000 ÷ 10 = 200 **6000 ÷ 100 = 60**

200	**100**
×10	**×60**
2000	**6000**

A. Complete these questions using sight division. Check your answers by multiplying.

1. $10\overline{)900}$
2. $10\overline{)6000}$
3. $100\overline{)700}$
4. $100\overline{)8000}$
5. $600 \div 10 =$
6. $7000 \div 100 =$
7. $7\overline{)630}$
8. $9\overline{)8100}$
9. $5\overline{)450}$
10. $1600 \div 4 =$
11. $3000 \div 6 =$
12. $5400 \div 9 =$

B. Find the divisors.

1. 6300 ÷ _____ = 700
2. 4000 ÷ _____ = 400
3. 3000 ÷ _____ = 100
4. 4000 ÷ _____ = 500

Lesson 23
Estimating Quotients

Warm-Up

A. Complete the following division sentences.
- Any number divided by itself equals 1. **Example: 7 ÷ 7 = 1**
- Any number divided by 1 equals itself. **Example: 7 ÷ 1 = 7**

1. 4 ÷ 4 = _____
2. 9 ÷ 1 = _____
3. 8 ÷ 8 = _____
4. 3 ÷ 3 = _____
5. 32 ÷ 1 = _____
6. 63 ÷ 1 = _____
7. 44 ÷ 44 = _____
8. 75 ÷ 1 = _____
9. 62 ÷ 1 = _____
10. 19 ÷ 19 = _____

B. Complete these questions as quickly as possible. Ask an adult to time you.

`

1. 10 ÷ 2 = _____
2. 18 ÷ 3 = _____
3. 36 ÷ 9 = _____
4. 49 ÷ 7 = _____
5. 30 ÷ 5 = _____
6. 64 ÷ 8 = _____
7. 80 ÷ 10 = _____
8. 56 ÷ 8 = _____
9. 18 ÷ 2 = _____
10. 40 ÷ 5 = _____
11. 81 ÷ 9 = _____
12. 27 ÷ 3 = _____
13. 56 ÷ 7 = _____
14. 0 ÷ 9 = _____
15. 7 ÷ 1 = _____
16. 25 ÷ 5 = _____
17. 32 ÷ 8 = _____
18. 16 ÷ 4 = _____
19. 40 ÷ 10 = _____
20. 9 ÷ 1 = _____

Time: _____ **seconds** **Correct Answers** _____

It's Your Turn
Part One

A. Use the multiples table for 8 to find out how many $8 fish can be purchased by each child below. Then write the division question and estimated quotients for each question.

Multiples of 8

8	16	24	32	40	48	56	64	72	80
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th

Example:

Julie $52 (division question) $8\overline{)\$52}$ 6 ← estimated quotient

6 fish

1. John $39 _____ fish
2. Fred $59 _____ fish
3. Bonnie $15 _____ fish
4. Erica $41 _____ fish

Part Two

B. Estimate by rounding to the nearest 10. Check your estimates with your calculator. Show your estimation.

1. $6\overline{)186}$
2. $8\overline{)272}$

3. $9\overline{)441}$

4. $5\overline{)155}$

C. Estimate by rounding off to the nearest 100. Check your estimates with your calculator. Show your estimation.

1. $9\overline{)819}$

2. $6\overline{)390}$

3. $8\overline{)312}$

4. $212 \div 4 =$

Part Three

D. Round off the divisor and the dividend (number being divided) to the nearest 10.

Estimate the related fact and write your answer in the proper place. Use your calculator to check that your estimate is reasonable.

1. $75\overline{)675}$

2. $46\overline{)392}$

3. $62\overline{)431}$

E. Round off the divisor to the nearest 10 and the dividend (number being divided) to the nearest 100.

Estimate the related fact and write your answer in the proper place. Use your calculator to check that your estimate is reasonable.

1. $62\overline{)4317}$

2. $1723 \div 29 =$

3. $45\overline{)3732}$

4. $78\overline{)6432}$

Lesson 24
Review

A. Complete the basic facts equations.

1.	20 ÷ 5 =	_____	11.	72 ÷ 9 =	_____
2.	4 ÷ 2 =	_____	12.	9 ÷ 3 =	_____
3.	21 ÷ 7 =	_____	13.	12 ÷ 4 =	_____
4.	0 ÷ 3 =	_____	14.	56 ÷ 7 =	_____
5.	24 ÷ 4 =	_____	15.	16 ÷ 4 =	_____
6.	16 ÷ 2 =	_____	16.	7 ÷ 1 =	_____
7.	70 ÷ 7 =	_____	17.	81 ÷ 9 =	_____
8.	24 ÷ 8 =	_____	18.	54 ÷ 6 =	_____
9.	18 ÷ 9 =	_____	19.	35 ÷ 7 =	_____
10.	10 ÷ 5 =	_____	20.	20 ÷ 10 =	_____

Time: _____ **seconds** **Correct Answers** _____

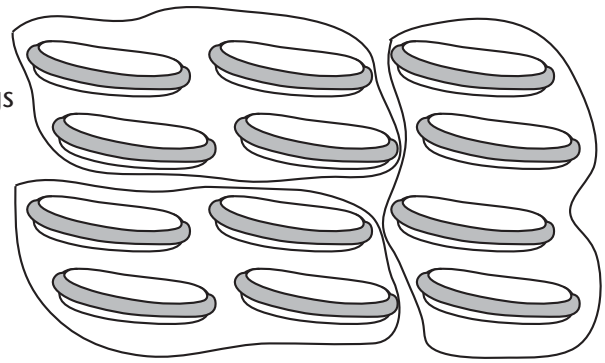
B. Write a division sentence for each of the questions below. Draw a diagram if necessary.

Example:

Share 12 hot dogs among 4 people.

or

12 ÷ 4 = 3



1. 16 children put into 8 equal groups.

_____

2. Share $28 among 4 people.

_____

3. 10 cats put into 10 equal groups.

_____

4. Share 15 prawns among 3 people.

_____

C. Write two division facts for each set of numbers in the boxes below.

Example:

3
18
6

18 ÷ 3 = 6
18 ÷ 6 = 3

1.

2
12
6

_____
_____

2.

6
5
30

_____
_____

3.

6
24
4

_____
_____

D. Use two multiplication facts to check each division question. Circle and correct any answers that are incorrect.

Example: 21 ÷ 3 = (8)

3 x 8 = 24
8 x 3 = 24
Correct answer: 21 ÷ 3 = 7

1. 6 ÷ 3 = 2

_____

_____

2. $4\overline{)28}$ (7)

_____

_____

3. 45 ÷ 5 = 9

_____

_____

4. 10 ÷ 2 = 5

_____

_____

5. 36 ÷ 4 = 8

_____

_____

6. $5\overline{)40}$ (8)

_____

_____

E. Name the parts of a division sentence.

5 → _____

_____ ← $8\overline{)40}$ → _____

_____ ← 40 ÷ 8 = 5 → _____

↓

_____

F. Rewrite the division sentences using $\overline{)}$ Answer each question.

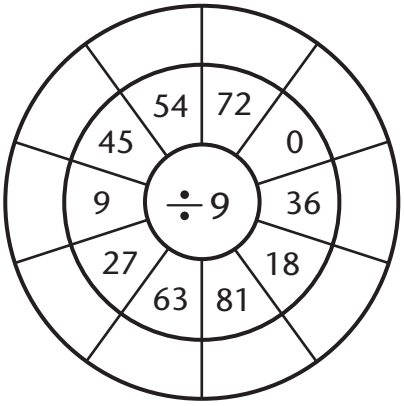
Example: 27 ÷ 3 $\quad 3\overline{)27}$ $\quad$ **9**

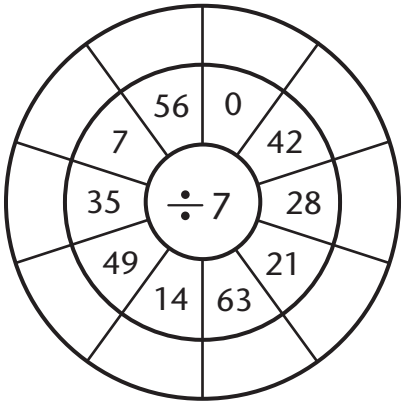
1. 42 ÷ 7 = _____

2. 30 ÷ 5 = _____

3. 6 ÷ 1 = _____

G. Complete the division wheels by placing the quotients in the outside rings.





H. Divide these questions as quickly as possible.

1. 10 ÷ 1 =
2. 70 ÷ 10 =
3. 6 ÷ 0 =
4. 360 ÷ 1 =
5. 1800 ÷ 3 =
6. 8 ÷ 1 =
7. 2700 ÷ 10 =
8. 900 ÷ 10 =
9. 9 ÷ 0 =
10. 450 ÷ 5 =

I. Use your knowledge of the basic division facts to estimate the quotients.

1. $4\overline{)38}$

2. $8\overline{)53}$

3. $5\overline{)42}$

4. $3\overline{)25}$

5. $7\overline{)50}$

J. Estimate.

1. Round to the nearest 10 then divide.

   $354 \div 6 =$

2. Round to the nearest 100 then divide.

   $1778 \div 7 =$

K. Estimate the answer to this problem.

Ann and Maria drove about the same distance each day on across-Canada trip. Their car's kilometer gauge showed that they had traveled 1968 km since they left Kamloops 6 days earlier. About how many kilometers had they traveled each day?

Statement: _____

_____

Lesson 25
Division of 2-Digit Numbers With No Remainders

Warm-Up

Divide. See how quickly and accurately you can complete the twenty questions.

1.	40 ÷ 5 =	_____	11.	64 ÷ 8 =	_____
2.	16 ÷ 2 =	_____	12.	32 ÷ 4 =	_____
3.	18 ÷ 3 =	_____	13.	72 ÷ 9 =	_____
4.	81 ÷ 9 =	_____	14.	27 ÷ 3 =	_____
5.	14 ÷ 2 =	_____	15.	21 ÷ 7 =	_____
6.	36 ÷ 9 =	_____	16.	50 ÷ 5 =	_____
7.	24 ÷ 3 =	_____	17.	24 ÷ 6 =	_____
8.	0 ÷ 9 =	_____	18.	20 ÷ 1 =	_____
9.	30 ÷ 5 =	_____	19.	56 ÷ 8 =	_____
10.	49 ÷ 7 =	_____	20.	1 ÷ 1 =	_____

It's Your Turn

A. Complete each of the following questions. They have been started for you.

Example:

$$\begin{array}{r} \mathbf{2} \\ \mathbf{2}\overline{)\mathbf{42}} \\ -\underline{\mathbf{4}} \end{array} \qquad \rightarrow \begin{array}{r} \mathbf{21} \\ \mathbf{2}\overline{)\mathbf{4\ 2}} \\ -\underline{\mathbf{4}}\ \downarrow \\ \mathbf{02} \\ -\underline{\mathbf{2}} \\ \mathbf{0} \end{array}$$

1. $\begin{array}{r} 1 \\ 3\overline{)57} \\ -\underline{3} \\ 2 \end{array}$

2. $\begin{array}{r} 4 \\ 2\overline{)80} \\ -\underline{8} \end{array}$

3. $\begin{array}{r} 1 \\ 5\overline{)85} \\ -\underline{5} \\ 3 \end{array}$

4. $\begin{array}{r} 1 \\ 4\overline{)48} \\ -\underline{4} \\ 0 \end{array}$

B. Circle any incorrect answers. Check by multiplying the quotient by the divisor.

Example:

$$\begin{array}{r} 13 \\ 6\overline{)\,84} \\ -\,6\downarrow \\ \hline 24 \\ -\,24 \\ \hline 0 \end{array}$$

Check: $13 \times 6 = 78$

1. $$\begin{array}{r} 18 \\ 5\overline{)\,95} \\ -\,5\downarrow \\ \hline 45 \\ -\,45 \\ \hline 0 \end{array}$$

2. $$\begin{array}{r} 14 \\ 6\overline{)\,78} \\ -\,6\downarrow \\ \hline 18 \\ -\,18 \\ \hline 0 \end{array}$$

3. $$\begin{array}{r} 18 \\ 4\overline{)\,72} \\ -\,4\downarrow \\ \hline 32 \\ -\,32 \\ \hline 0 \end{array}$$

4. $$\begin{array}{r} 34 \\ 2\overline{)\,68} \\ -\,6\downarrow \\ \hline 08 \\ -\,8 \\ \hline 0 \end{array}$$

C. Divide.

Example:

$$\begin{array}{r} \mathbf{24} \\ \mathbf{3}\overline{)\mathbf{72}} \\ \underline{-\mathbf{6}}\downarrow \\ \mathbf{12} \\ \underline{\mathbf{12}} \\ \mathbf{0} \end{array}$$

$3\overline{)93}$ $4\overline{)84}$ $5\overline{)85}$ $6\overline{)96}$

$8\overline{)96}$ $7\overline{)98}$ $9\overline{)90}$ $4\overline{)92}$

D. Solve the problems. Write a statement (sentence answer).

1. There are 90 grapefruit in a crate. How many bags of 6 grapefruit each can be filled by using the grapefruit in the crate?

Statement: _____

_____

2. You have 65 pennies to exchange for nickels. How many nickels will you get?

Statement: _____

_____

Challenge Yourself

If you haven't already learned to play Ninety-Nine, this would be a good time to try the game. It's more fun if you have at least four players. The directions are in the Game section.

Lesson 26
Division of 3-Digit Numbers With No Remainders

Warm-Up

Can you complete this division sentence? If necessary take 5 objects (beans, bottle caps, etc.) and try it.

5 ÷ 0 =

Why is this not possible? You have learned that 5 objects can never be divided into 0 groups because you will always have 5 objects.

Now think about this division sentence. Can you do it with objects?

0 ÷ 4 =

If you have 0 objects to start with, you will always end up with 0 objects. You can't divide' nothing' into groups.

Cross out the following division sentences that are impossible and complete the rest.

1. 8 ÷ 0 = _____
2. 6 ÷ 2 = _____
3. 10 ÷ 2 = _____
4. 4 ÷ 0 = _____
5. 4 ÷ 2 = _____
6. 5 ÷ 1 = _____
7. 8 ÷ 4 = _____
8. 0 ÷ 7 = _____
9. 0 ÷ 5 = _____
10. 7 ÷ 1 = _____

It's Your Turn

A. Solve these questions by following the steps you learned during the lesson.

1. $5\overline{)685}$

2. $4\overline{)964}$

3. $7\overline{)924}$

4. $3\overline{)672}$

5. $6\overline{)498}$

6. $9\overline{)567}$

7. $6\overline{)936}$

8. $6\overline{)438}$

Challenge Yourself

Answer the following problems.

1. 222 new cars had just arrived by freighter in Vancouver. They needed to be delivered to 6 different car dealerships in equal numbers. How many cars were delivered to each car lot?

Statement: _____

_____

2. Kali, Deborah, Julie, and Parminder earned $184 selling toys and clothing at a garage sale. They chose to share the money equally. How much did they each receive?

Statement: _____

_____

To have some fun, go to
http://www.funbrain.com/teachers/subj_math.html

Play the division part of Math Baseball, Math Car Racing , or Number Cracker.

Lesson 27
Division With Remainders

Warm-Up

Complete the questions on the next page by filling in the missing numbers.

1. 9 x 5 + ☐ = 47
2. 8 x 8 + ☐ = 67
3. 6 x 4 + ☐ = 25
4. 5 x 2 + ☐ = 13
5. 6 x 6 + ☐ = 39
6. 0 x 6 + ☐ = 3
7. 9 x 7 + ☐ = 69
8. 2 x 7 + ☐ = 16
9. 1 x 10 + ☐ = 18
10. 3 x 7 + ☐ = 23
11. 4 x 7 + ☐ = 28
12. 6 x 5 + ☐ = 33
13. 1 x 6 + ☐ = 9
14. 5 x 10 + ☐ = 51
15. 5 x 5 + ☐ = 29
16. 6 x 9 + ☐ = 57
17. 3 x 4 + ☐ = 14
18. 2 x 9 + ☐ = 18
19. 8 x 3 + ☐ = 25
20. 7 x 7 + ☐ = 55

It's Your Turn

A. Complete each question.

1. $9\overline{)\ 64}$ → 7, -63

2. $8\overline{)\ 19}$ → 2, -16

3. $7\overline{)29}$ → 4

4. $6\overline{)14}$ → 2

5. $5\overline{)\ 44}$ → -40

6. $3\overline{)\ 20}$ → -18

7. $2\overline{)\ 19}$ → -18

8. $4\overline{)\ 35}$ → -32

B. Divide. Show remainders where necessary.

1. $4\overline{)19}$

2. $5\overline{)45}$

3. $7\overline{)45}$

4. $6\overline{)31}$

5. $8\overline{)37}$

6. $9\overline{)55}$

7. $8\overline{)64}$

8. $5\overline{)17}$

C. Solve this problem. Show your work. Be sure to answer both questions by writing statement answers.

A carpenter needs 4 pieces of wood to build a bench. She has 25 pieces of wood in all. How many benches can be made with the wood? How many pieces of wood will be left over?

Statement: _____

_____

Challenge Yourself

In everyday life we often find situations where we need to **think with division** to answer money questions. Read the following example.

> In a supermarket you see a box of 6 popsicles which costs $2.58. You know the corner store down the road charges $0.50 each for a popsicle. You want to know if the supermarket is offering a better deal.

You must divide the $2.58 by 6 to calculate the individual cost of each popsicle in the box.

To do this you think: $6\overline{)\$2.58}$

With a money question you must calculate it as an ordinary division question, (258 ÷ 6) but write the final answer with the **period** or **decimal point** in the correct position.

It is placed directly above where it is in the number being divided (dividend).

$$\begin{array}{r} .43 \\ 6\overline{)\$2.58} \\ \underline{24} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

You can see the supermarket is offering a better deal on popsicles by selling them for $0.43 each instead of the $0.50 price at the corner store.

Now solve these problems. Show your work and include a statement answer.

1. What is the cost of 1 chocolate cookie, if 6 cookies cost $0.96?

Statement: _____

_____

2. Bob bought 3 t-shirts on sale for a total price of $19.86. How much did each shirt cost?

Statement: _____

_____

You can solve division questions using your calculator. Look at this problem.

A school has purchased 3 boxes of math textbooks each containing 48 books. The books need to be shared among 6 classes. How many math books will each class receive?

First you need to find out how many math books there are altogether.

You press: 48 x 3 to read an answer of 144.
You then need to divide: the 144 books up into 6 groups or classes.
You press: 144 ÷ 6 to read an answer of 24.
You know: each class will receive 24 math books.

3. Solve this problem using your calculator.

Seedling trees come in wrapped bundles, with 6 to a bundle. A tree-planting company has 351 bundles that need to be planted by 9 tree planters. How many seedling trees will each tree planter have if the trees are divided up equally?

Statement: _____

_____

4. Use your calculator to solve this problem.

Lynn bought 3 books for $7.47. Sandy bought 4 books for $9.84. Which was the better buy? Circle the better buy.

3 for $7.47 4 for $9.84

Statement: _____

_____

Lesson 28
Dividing 2-Digit Numbers No Remainders

Warm-Up

Complete this review of basic division facts that have a divisor or quotient of 9.

1. $81 \div 9 =$ _____
2. $72 \div$ _____ $= 9$
3. $45 \div 9 =$ _____
4. $18 \div 9 =$ _____
5. $27 \div$ _____ $= 9$
6. $9 \div$ _____ $= 9$
7. $36 \div 9 =$ _____
8. $54 \div$ _____ $= 9$
9. $63 \div$ _____ $= 9$
10. $90 \div 9 =$ _____
11. $0 \div 9 =$ _____
12. $72 \div 9 =$ _____

It's Your Turn

A. Complete each of the questions below. Put the remainder in your answer. Remember to use the letter 'R' to stand for remainder.

1.
$$\begin{array}{r} 23 \\ 2\overline{)47} \\ -\ \underline{4} \\ 07 \\ -\ \underline{6} \end{array}$$

2.
$$\begin{array}{r} 13 \\ 5\overline{)67} \\ -\underline{5} \\ 17 \\ -\underline{15} \end{array}$$

3.
$$\begin{array}{r} 1 \\ 8\overline{)91} \\ \underline{-8} \\ 11 \end{array}$$

4.
$$\begin{array}{r} 1 \\ 6\overline{)75} \\ \underline{-6} \end{array}$$

B. Divide. You will need to write each question in its other form before you answer. Show remainders where necessary. Check your answers with your calculator using multiplication if there is no remainder, or multiplication and addition if there is a remainder.

1. $87 \div 5 =$

2. $74 \div 4 =$

3. $88 \div 4 =$

4. $68 \div 8 =$

5. $46 \div 3 =$

6. $87 \div 7 =$

C. Solve each problem. Show all your work in the box and write a statement to answer each question.

1. Bruce the Baker uses 4 cups of flour for each loaf of bread. If he has 94 cups of flour, how many loaves of bread can he make? What is left over?

Statement: _____

2. Jeremy makes bracelets out of coloured paper clips. He uses 8 paper clips for each bracelet and has 90 paper clips. How many bracelets will he make? What is left over?

Statement: _____

_____

3. Laurie has 47 different pieces of yarn. If she uses 3 pieces for each friendship bracelet, how many complete bracelets can she make? What is left over?

Statement: _____

_____

Challenge Yourself

A. Multiply first and then add to solve these questions.

1. 6 x 5 + 3 =_____
2. 4 x 9 + 2 =_____
3. 8 x 8 + 3 =_____
4. 2 x 5 + 1 =_____
5. 4 x 9 + 5 =_____
6. 6 x 7 + 6 =_____
7. 7 x 7 + 5 =_____
8. 8 x 3 + 2 =_____
9. 5 x 5 + 3 =_____
10. 2 x 6 + 5 =_____
11. 9 x 9 + 2 = _____
12. 3 x 6 + 4 =_____
13. 4 x 7 + 1 =_____
14. 4 x 8 + 3 =_____
15. 9 x 3 + 4 =_____
16. 6 x 8 + 3 =_____
17. 10 x 10 + 8 =_____
18. 2 x 9 + 7 =_____
19. 9 x 6 + 4 =_____
20. 7 x 2 + 1 =_____

B. Complete each question by multiplying and then adding.

1. 107 x 3 + 2 = _____
2. 97 x 5 + 4 = _____
3. 128 x 7 + 5 = _____
4. 176 x 9 + 5 = _____
5. 376 x 5 + 1 = _____
6. 681 x 8 + 7 = _____
7. 420 x 3 + 6 = _____
8. 195 x 6 + 2 = _____
9. 459 x 4 + 3 = _____
10. 209 x 2 + 5 = _____

Lesson 29
Dividing 3-Digit Numbers With Remainders

Warm-Up

How good are your mental math skills? Try these.

1. 6 x 8 + 9 – 3 – 9 = _____
2. 56 ÷ 7 x 4 + 10 – 6 – 4 = _____
3. 84 – 9 – 20 – 6 – 7 = _____
4. 3 x 3 x 3 + 3 – 10 = _____
5. 34 – 4 – 4 – 4 + 2 – 6 = _____
6. 9 x 10 + 9 + 10 – 65 = _____

It's Your Turn

A. Complete these division questions.

1. $3\overline{)339}$
2. $5\overline{)565}$
3. $2\overline{)258}$
4. $8\overline{)896}$
5. $7\overline{)924}$
6. $4\overline{)760}$

B. How many digits in each answer? Place the number of digits in the space.

Be careful.

Example:

$$\begin{array}{r} 81 \\ 4\overline{)324} \\ \underline{32}\downarrow \\ 004 \\ \underline{4} \\ 0 \end{array}$$

2 digits in quotient

1. $6\overline{)672}$ _____ digits in quotient

2. $5\overline{)255}$ _____ digits in quotient

3. $4\overline{)168}$ _____ digits in quotient

4. $2\overline{)368}$ _____ digits in quotient

C. Divide. Show all the remainders.

1. $3\overline{)963}$

2. $2\overline{)454}$

3. $8\overline{)928}$

4. $6\overline{)696}$

5. $3\overline{)212}$

6. $2\overline{)237}$

Challenge Yourself

There are three ways you can check to see if your answers to division questions are accurate.

It isn't always necessary to know exact answer immediately. You can judge (estimate) if your answer is close or reasonable.

Look at this example:

> 7 friends worked together to pick strawberries at a local farm. They were given a cheque for $581 to divide equally. One of the friends figured out the division and paid each friend $62. Does this seem reasonable or correct?

Use your understanding of related facts to think:

580 is close to 560 **560 ÷ 7 = 80**

You know that the pay should be around $80, so $62 is not the correct amount.

A. Estimate and correct any answers that are not reasonable.

1. $523 \div 7 = 80$

2. $684 \div 9 = 76$

You also know you can use multiplication to check your answers to division questions.

$$\begin{array}{r} 22 \\ 32\overline{)704} \\ \underline{64} \\ 64 \\ \underline{64} \\ 0 \end{array} \qquad \begin{array}{r} 22 \\ \times\ 32 \\ \hline 44 \\ \underline{660} \\ 704 \end{array}$$

B. Complete these questions and check your answers by multiplying the quotient by the divisor.

1. $9\overline{)462}$

2. $5\overline{)715}$

You have also learned to use your calculator to quickly check the accuracy of your answers. A calculator also helps you to calculate larger, more complicated questions that involve division. Look at the following example:

> Exactly 280 students were allowed in each day to view a special Science Exhibit. The Exhibit was in town for 16 days. The total number of students came equally from 4 different schools. How many students came from each school?

Use your calculator:

Find the total number of students who were viewing the Exhibit.

> **280 x 16 = 4480**

Find the number of students from each school.

> **4480 ÷ 4 = 1120 students came to the Exhibit from each school.**

C. Use your calculator to check your answers for the division questions in Parts A and C in **It's Your Turn**. Remember you multiply the quotient by the divisor. If answers include a remainder you add it on at the end.

Lesson 30
Division with Zeros In the Quotient

Warm-Up

A. Multiply the questions below in your head. Break the numbers down, multiply both parts, and then add.

Example: 107 x 5 = $\begin{array}{r} \textbf{5 x 100} \\ \underline{\textbf{+ 5 x 7}} \\ \textbf{535} \end{array}$ **= 535**

1. 107 x 1 = _____
2. 102 x 2 = _____
3. 107 x 3 = _____
4. 105 x 4 = _____
5. 106 x 7 = _____
6. 103 x 5 = _____
7. 108 x 6 = _____
8. 101 x 9 = _____
9. 108 x 3 = _____
10. 109 x 8 = _____

B. Divide. Check your work with a calculator.

1. $3\overline{)936}$

2. $9\overline{)645}$

3. $7\overline{)928}$

4. $4\overline{)896}$

5. $7\overline{)596}$

6. $5\overline{)438}$

It's Your Turn

A. Look at each question below and determine whether there will be 2 digits in the quotient or 3. Place the first digit in the quotient in its correct position.

Example: $5\overline{)400}$ **0 ← in ten's column above 0**
2 digits in quotient

1. $6\overline{)926}$ _____ digits in quotient

2. $5\overline{)355}$ _____ digits in quotient

3. $7\overline{)428}$ _____ digits in quotient

4. $2\overline{)127}$ _____ digits in quotient

B. Complete each division question below. Show remainders when necessary.

1. $7\overline{)350}$

2. $8\overline{)808}$

3. $6\overline{)654}$

4. $9\overline{)180}$

5. $3\overline{)302}$

6. $8\overline{)164}$

C. Divide. Show remainders where necessary.

1. $2\overline{)204}$

2. $7\overline{)630}$

3. $8\overline{)407}$

4. $5\overline{)505}$

Challenge Yourself

Have a look at division problems that have remainders and estimate about how many equal parts a group can be divided into.

A. Use your knowledge of the basic multiplication facts to estimate the quotients in these division sentences.

1. $8\overline{)69}$ (8)

2. $3\overline{)16}$

3. $9\overline{)29}$

4. $7\overline{)45}$

5. $6\overline{)19}$

6. $5\overline{)11}$

7. $6\overline{)43}$

8. $8\overline{)42}$

B. Play a favourite card game or computer math game. You can check out the Web sites listed on the Web site page.

Lesson 31
Division With a 2-Digit Divisor

Warm-Up

Review your one-digit division. Try these.

1. $7\overline{)987}$

2. $4\overline{)392}$

3. $8\overline{)352}$

4. $7\overline{)392}$

5. $3\overline{)974}$

6. $5\overline{)376}$

7. $6\overline{)3981}$

8. $9\overline{)2987}$

It's Your Turn

Complete the following questions. Remember to use your rounding off skills to estimate quotients.

1. $73\overline{)219}$

2. $48\overline{)729}$

3. $55\overline{)685}$

4. $48\overline{)6381}$

5. $27\overline{)3894}$

Challenge Yourself

A. Round off the divisor and the number being divided to the nearest 10.

Estimate the related fact and write your answer in the proper place.

1. $46\overline{)392}$

2. $876 \div 38 =$

3. $62\overline{)431}$

4. $61\overline{)729}$

B. Circle any information you do not need to solve each of the following problems. Then complete the problem.

Example: Postcards cost 35¢ to mail and letters cost 40¢. How many letters can you mail if you have $2.80?

1. Jack had 82 marbles. John had 17 more marbles than Jack and Mary had 26 more marbles than John. How many marbles did John have?

2. The Smiths went on a 10 day holiday. They drove 2500 km (kilometers). Hotel rooms cost $90 per night. How much was their total hotel bill?

Statement: _____

_____

3. Harley had $9. He bought potato chips for $1.25 and 2 cans of soda pop at 85 [insert cent sign] each. How much money did Harley spend?

Statement: _____

_____

Lesson 32
Review

A. Complete the basic facts equations.

$7\overline{)35}$	$9\overline{)27}$	$6\overline{)24}$	$7\overline{)49}$	$8\overline{)48}$	$9\overline{)36}$
$5\overline{)40}$	$3\overline{)24}$	$2\overline{)16}$	$6\overline{)48}$	$7\overline{)28}$	$9\overline{)54}$
$5\overline{)15}$	$4\overline{)12}$	$2\overline{)12}$	$3\overline{)0}$	$6\overline{)54}$	$3\overline{)27}$
$4\overline{)20}$	$8\overline{)56}$	$6\overline{)30}$	$4\overline{)24}$	$3\overline{)21}$	$5\overline{)30}$
$8\overline{)16}$	$5\overline{)35}$	$4\overline{)16}$	$8\overline{)64}$	$9\overline{)63}$	$8\overline{)40}$

B. Complete each of the following questions. Show any remainders.

1. $4\overline{)96}$
2. $2\overline{)647}$
3. $8\overline{)94}$
4. $6\overline{)252}$
5. $6\overline{)832}$
6. $4\overline{)68}$
7. $9\overline{)547}$
8. $7\overline{)84}$
9. $8\overline{)94}$
10. $5\overline{)175}$
11. $3\overline{)87}$
12. $2\overline{)121}$
13. $4\overline{)732}$
14. $5\overline{)930}$
15. $3\overline{)89}$
16. $5\overline{)68}$
17. $7\overline{)615}$
18. $6\overline{)76}$
19. $4\overline{)248}$
20. $3\overline{)79}$

C. Divide. Check by multiplying.

1. $3\overline{)\$2.46}$
2. $9\overline{)\$15.66}$
3. $4\overline{)\$62.56}$

D. Compute mentally.

1. $80 \div 2 =$
2. $400 \div 8 =$
3. $700 \div 7 =$
4. $180 \div 9 =$
5. $60 \div 2 =$
6. $350 \div 5 =$

E. Divide.

1. $9\overline{)758}$
2. $6\overline{)525}$
3. $3\overline{)269}$
4. $8\overline{)808}$
5. $9\overline{)1827}$
6. $5\overline{)450}$
7. $4\overline{)1234}$
8. $7\overline{)350}$

F. 1. Estimate the quotients.

a. $3\overline{)25}$
b. $2\overline{)5}$
c. $7\overline{)16}$

2. Estimate the quotients.

   In questions a and b, round the dividends and the divisors to the nearest 10.

   In questions c and d, round the dividends to the nearest 100 and the divisors to the nearest 10. Show your estimations.

   a. $26\overline{)940}$ b. $46\overline{)5312}$

   c. $72\overline{)359}$ d. $75\overline{)6235}$

G. Divide. Check your work with your calculator.

1. $16\overline{)88}$ 2. $19\overline{)114}$ 3. $36\overline{)756}$

4. $25\overline{)330}$ 5. $23\overline{)94}$ 6. $63\overline{)9008}$

Games

You can use games to make practising the basic facts more enjoyable for your child.

Flashcards

If you have two children, you can have flash cards races. Flash the card quickly. The child who is first to give the correct answer gets the card. The child with the most cards wins.

If you have one child, flash each card quickly. If your child gives you the correct answer, put it face down in one pile. If he or she gives you an incorrect answer, put it face down in a second pile. Now pick up the incorrect answer pile of flashcards, shuffle them, and repeat.

Concentration

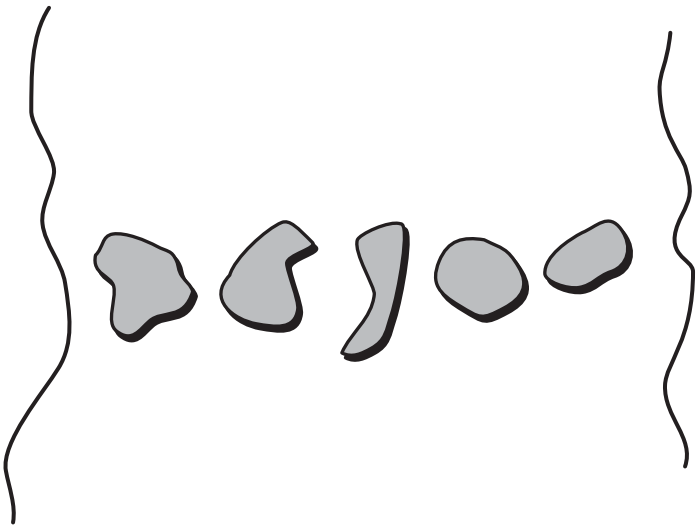
You can make a concentration game by printing subtraction equations on one set of cards and answers on another. Just make sure there are not two equations with the same answer.

Mix the cards and lay them face down. Take turns trying to match equations with their answers.

You can also make concentration cards with the equations on one set of cards and equation plus answers on another set of cards.

Cross the River

Make a drawing on a sheet of paper or chalkboard like the illustration below. Put in as many stones as you wish



On the riverbank write a divisor.

For example, 4

On each stone in the river, print numbers that can be divided evenly by 4 (division basic facts). The object is to cross the river without falling in.

Ask: Can you cross the river without falling in?

Have your child give the quotients (correct answers) to cross safely to the other side of the river.

This game can be played many times, using a variety of division basic facts.

A variation to this game is to draw a set of stairs instead of the stones in a river.

Your child may enjoy playing the following commercially produced games.

- Uno
- Yahtzee
- Racko
- Wizard
- Dominoes
- Skip Bo

You can also make up your own games or try the games that follow.

Division Board Game

What You Need

- 1 marker for each player
- 50 counters (buttons, pasta pieces, bottle caps) for each player
- a die
- game board

What To Do

Start	40	21	5	11	44	29
45						13
49						36
35						15
24						42
3						28
50						32
41	31	20	25	39	48	38

1. Begin by putting the markers on the Start square.

2. Take turns.
3. Roll the number cube. Move that many spaces in either direction.
4. Divide the number you land on by the number you rolled. If you have a remainder, give that number of counters to your partner.
5. Continue to take turns. On each turn you may move your marker in either direction.
6. Play until one player runs out of counters. That player is the winner.

Triangle Cards

Make triangle shaped flashcards. On each triangle:

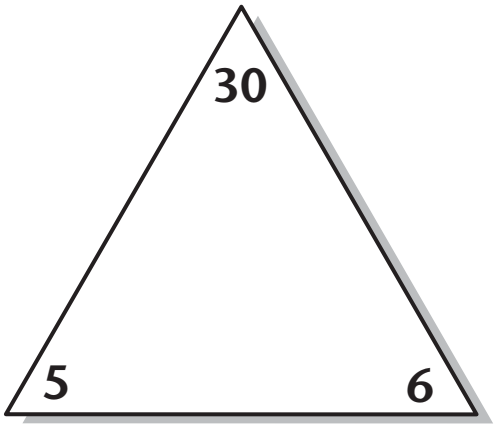
- in one corner print a dividend
- in the two other corners, print numbers (one to ten) that can be divided into the first number or can be multiplied to equal the first number

30 ÷ 6 = 5

30 ÷ 5 = 6

5 x 6 = 30

6 x 5 = 30



Have your child cover one number with his or her thumb and use the other two numbers to make up a basic fact question. This can be either a multiplication question or a division question depending on the number under your child's thumb. The number under your child's thumb is the answer.

Part 2
Division

Answer Key

Pre-Test—Division
Answer Key

Part A—Test of Basic Division Facts

A. Answer the following questions as quickly as possible. This is not a timed test.

1. 2
2. 2
3. 2
4. 4
5. 6
6. 1
7. 5
8. 7
9. 5
10. 9
11. 7
12. 5
13. 8
14. 8
15. 0
16. 7
17. 4
18. 4
19. 8
20. 9

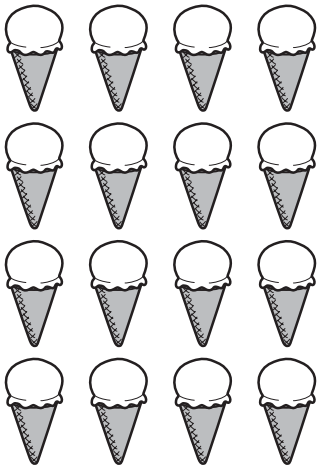
1. 5
2. 3
3. 4
4. 5
5. 7
6. 6
7. 5
8. 3
9. 5
10. 4
11. 4
12. 7
13. 2
14. 7
15. 7
16. 7
17. 7
18. 0
19. 7
20. 2

Writing Division Sentences

B. Fill in the missing numbers.

1.	4	2.	2
3.	25	4.	2
5.	32	6.	5

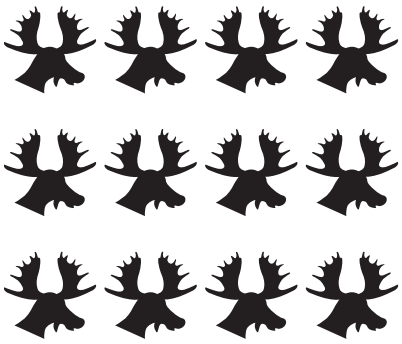
C. Write a division sentence for each question. Circle the equal groups before you write the sentence answer.

1. 

Divide into 4 equal groups.

Division Sentence:

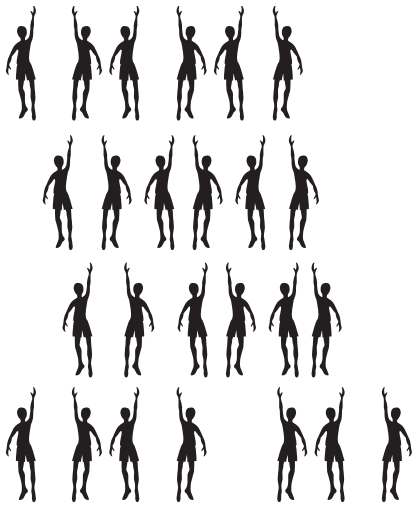
16 ÷ 4 = 4 cones in 4 equal groups

2. 

Divide into 2 equal groups.

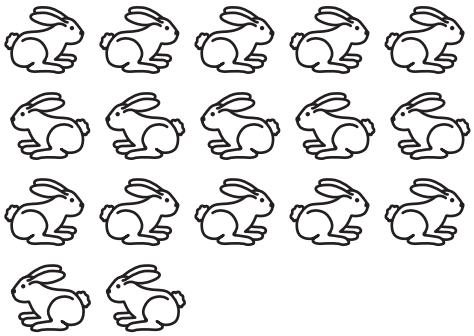
Division Sentence:

12 ÷ 2 = 6 animal heads in 2 equal groups

3. 

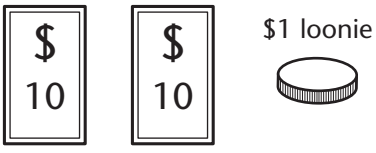
25 basketball players are on 5 teams. How many players are on each team?

25 ÷ 5 = 5 people in 5 equal groups

4. 

18 rabbits are in 2 pens. How many rabbits are in each pen?

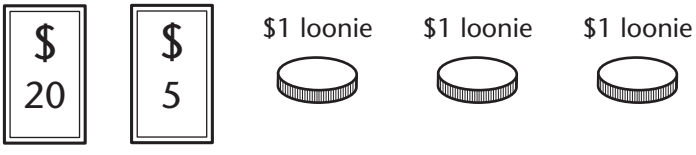
18 ÷ 2 = 9 rabbits in 2 equal groups

5. 

Shared by 3 people

$21 ÷ 3 = $7

Division sentence: _____

6. 

Shared by 7 people

$28 ÷ 7 = $4

Division sentence: _____

7.

Shared by 5 people

$35 ÷ 5 = $7

Division sentence: _____

D. Write two division sentences from each set of numbers in the boxes below.

1. | 6 | 6 | 1 |

6 ÷ 6 = 1
6 ÷ 1 = 6

2. | 5 | 35 | 7 |

35 ÷ 5 = 7
35 ÷ 7 = 5

3. | 9 | 63 | 7 |

63 ÷ 9 = 7
63 ÷ 7 = 9

These skills are covered in Division Lessons 1 and 2.

Part B—Writing Division Sentences in Two Ways

A. Name the parts of a division sentence.

1. *Dividend* ← 45 ÷ 5 = 9 → *Quotient*
↓
Divisor

2. 5 → *Quotient*
Divisor ← 6)30 → *Dividend*

B. Rewrite the division sentences using $\overline{)\quad}$. Answer each question.

1. $5\overline{)45}$ $\quad 9$
2. $3\overline{)15}$ $\quad 5$
3. $6\overline{)36}$ $\quad 6$

Review of the Division Facts from Six to Nine

C. Answer these questions as quickly and accurately as possible.

4	2	8	5
7	3	6	9
8	6	4	2
9	3	7	5
7	5	3	9
2	8	4	6
6	8	4	2
9	7	3	5

These skills are covered in Division Lessons 3 and 4.

Part C—Dividing Facts of Zero, One, Ten, and One Hundred Estimation

A. Divide

1. 500	2. 90
3. 240	4. 300
5. 0	6. 600
7. 260	8. 50
9. 4	10. 0

B. Estimate to the nearest multiple to complete these division questions.

1. Use your knowledge of basic facts to estimate the quotients.

   a. 9
   b. 5
   c. 9
   d. 4

2. Estimate to the nearest 10

e. $3\overline{)910}$ → $\frac{300}{3\overline{)910}}$ $\quad$ $3\overline{)909}$ → $\frac{303}{3\overline{)909}}$

f. $130 \div 4 = 30$ $\quad$ $128 \div 4 = 32$

3. Estimate to the nearest 100

g. $7\overline{)3700}$ → $\frac{500}{7\overline{)3700}}$ $\quad$ $7\overline{)3717}$ → $\frac{531}{7\overline{)3717}}$

h. $9\overline{)5900}$ → $\frac{600}{9\overline{)5900}}$ $\quad$ $9\overline{)5877}$ → $\frac{653}{9\overline{)5877}}$

These skills are covered in Division Lessons 5 and 6.

Part D—Dividing 2- and 3-Digit Numbers with No Remainders

A. Divide.

$\frac{14}{2\overline{)28}}$ $\quad$ $\frac{12}{3\overline{)36}}$ $\quad$ $\frac{23}{3\overline{)69}}$ $\quad$ $\frac{126}{7\overline{)882}}$ $\quad$ $\frac{203}{3\overline{)609}}$ $\quad$ $\frac{185}{5\overline{)925}}$

$\frac{32}{6\overline{)192}}$ $\quad$ $\frac{12}{8\overline{)96}}$ $\quad$ $\frac{12}{7\overline{)84}}$

$\frac{234}{2\overline{)468}}$ $\quad$ $\frac{118}{4\overline{)472}}$ $\quad$ $\frac{117}{5\overline{)585}}$

B. Solve the following problems. Show your work and write a statement.

1. 77 stamps are given to a stamp club. Each of the 7 members is to receive the same number of stamps. How many stamps will each member receive?

```
  11
7)77
 7 ↓
 0 7
   7
   0
```

Statement: **Each member will receive 11 stamps.**

---

2. At a factory, 968 shirts were manufactured during an 8 hour shift. The same number was manufactured each hour. How many shirts were manufactured each hour?

```
  121
8)968
 8 ↓↓
 16
 16
  08
  08
   0
```

Statement: **121 shirts were manufactured each hour.**

These skills are covered in Division Lessons 8 and 9

Part E—Division with Remainders

A. Divide. Show any remainders.

1. $4\overline{)9}$ → 2, 8, 1

2. $3\overline{)17}$ → 5, 15, 2

3. $7\overline{)13}$ → 1, 07, 6

4. $8\overline{)59}$ → 7, 56, 3

5. $8\overline{)23}$ → 2, 16, 7

6. $9\overline{)81}$ → 9, 81, 0

7. $9\overline{)735}$ → 81, 72↓, 15, 9, 6

8. $8\overline{)649}$ → 81, 64↓, 9, 8, 1

9. $7\overline{)365}$ → 52, 35↓, 15, 14, 1

10. $3\overline{)959}$ → 319, 9↓↓, 5, 3, 29, 27, 2

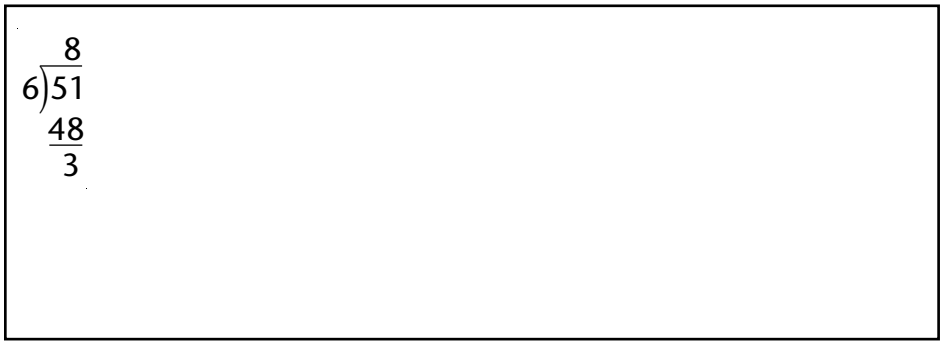
B. Solve these problems. Show your work and make a statement answer.

1. Each sandwich requires 2 pieces of bread. 15 slices of bread were in one loaf. How many sandwiches can be made with this loaf of bread? How many slices are left over?

$2\overline{)15}$ → 7, 14, 1

Statement: ***7 sandwiches can be made. I slice is leftover.***

2. Henry made 51 muffins. He sold the muffins in half-dozen bags. How many bags of muffins did Henry sell? How many muffins were left over?



Statement: **Henry sold 8 bags of muffins. He had 3 muffins leftover.**

C. Divide. Use multiplication to check your answers.

1. $2\overline{)86}$ = 43

$8\downarrow$
06
6
0

$43 \times 2 = 86$

2. $4\overline{)92}$ = 23

$8\downarrow$
12
12
0

$23 \times 4 = 92$

3. $5\overline{)25}$

$\begin{array}{r} 5 \\ \underline{25} \\ 0 \\ \underline{6} \\ 0 \end{array}$

$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$

4. $3\overline{)75}$

$\begin{array}{r} 25 \\ \underline{6}\downarrow \\ 15 \\ \underline{15} \\ 0 \end{array}$

$\begin{array}{r} 25 \\ \times 3 \\ \hline 75 \end{array}$

These skills are covered in Division Lessons 10, 11, and 12

Part F—Division with Zero in the Quotient, Estimating with Remainders, and Checking with Multiplication

A. Divide. Show your remainders.

1. $2\overline{)403}$ R1

$\begin{array}{r} 201 \\ \underline{4}\downarrow\downarrow \\ 00 \\ \underline{0} \\ 03 \\ \underline{2} \\ 1 \end{array}$

2. $6\overline{)608}$ R2

$\begin{array}{r} 101 \\ \underline{6}\downarrow\downarrow \\ 00 \\ \underline{0} \\ 08 \\ \underline{6} \\ 2 \end{array}$

3. $4\overline{)416}$

$\begin{array}{r} 104 \\ \underline{4}\downarrow\downarrow \\ 01 \\ \underline{0} \\ 16 \\ \underline{16} \\ 0 \end{array}$

4. $7\overline{)706}$ R6

$\begin{array}{r} 100 \\ \underline{7}\downarrow\downarrow \\ 00 \\ \underline{0} \\ 06 \\ \underline{0} \\ 6 \end{array}$

5. $5\overline{)545}$

$\begin{array}{r} 109 \\ \underline{5}\downarrow\downarrow \\ 04 \\ \underline{0} \\ 45 \\ \underline{45} \\ 0 \end{array}$

6. $3\overline{)613}$ R1

$\begin{array}{r} 204 \\ \underline{6}\downarrow\downarrow \\ 01 \\ \underline{0} \\ 13 \\ \underline{12} \\ 1 \end{array}$

B. Use your knowledge of multiplication facts to estimate these division sentences.

1. $73 \div 8 =$ **9**
2. $29 \div 5 =$ **5**
3. $39 \div 7 =$ **5**
4. $32 \div 6 =$ **5**
5. $49 \div 8 =$ **6**
6. $56 \div 9 =$ **6**

C. Find the nearest multiple to estimate the answer to these problems.

1. Socks are for sale for $3 a pair. How many pairs can you buy with $29?

$$\$3\overline{)\$27}\quad 9$$

Statement: **You can buy 9 pairs of socks.**

2. George baked 48 cookies to sell at a bake sale. He wanted to put 9 cookies on a plate. How many plates of cookies will he have to sell?

$$9\overline{)45}\quad 5$$

Statement: **He will have 5 plates of cookies to sell.**

These skills are covered in Division Lesson 13.

Part G—Division with 2-Digit Divisors

A. Find the quotients.

1. $46\overline{)988}$ R22

$$\begin{array}{r} 21 \\ 46\overline{)988} \\ \underline{92}\downarrow \\ 68 \\ \underline{46} \\ 22 \end{array}$$

2. $29\overline{)645}$ R7

$$\begin{array}{r} 22 \\ 29\overline{)645} \\ \underline{58}\downarrow \\ 65 \\ \underline{58} \\ 07 \end{array}$$

3. $42\overline{)633}$ R3

$$\begin{array}{r} 15 \\ 42\overline{)633} \\ \underline{42}\downarrow \\ 213 \\ \underline{210} \\ 3 \end{array}$$

4. $87\overline{)959}$ R2

$$\begin{array}{r} 11 \\ 87\overline{)959} \\ \underline{87}\downarrow \\ 89 \\ \underline{87} \\ 02 \end{array}$$

5. $34\overline{)6494}$

$$\begin{array}{r} 191 \\ 34\overline{)6494} \\ \underline{34}\downarrow\downarrow \\ 309 \\ \underline{306} \\ 34 \\ \underline{34} \\ 0 \end{array}$$

6. $79\overline{)8841}$ R72

$$\begin{array}{r} 111 \\ 79\overline{)8841} \\ \underline{79}\downarrow\downarrow \\ 94 \\ \underline{79} \\ 151 \\ \underline{79} \\ 72 \end{array}$$

B. Round off the divisor and the number to be divided to the nearest 10. Estimate the related fact and write your answer in the proper place.

1. $660 \div 50 = 10$

2. $80\overline{)530}$ $\quad 6$

3. $80\overline{)760}$ $\quad 9$

C. Round off the divisor to the nearest 10 and the number being divided to the nearest 100. Estimate the related fact and write your answer in the proper place.

1. $60\overline{)4300}$ $\quad 70$

2. $50\overline{)3700}$ $\quad 70$

Answer Key—Part 2

Lesson 18
Sharing and Placing Things Into Equal Groups

It's Your Turn

A.

9	6. 3
4	7. 6
3	8. 9
4	9. 7
6	10. 3

B.

1.	Friday	$12 ÷ 3 = $4
2.	Saturday	$24 ÷ 3 = $8
3.	Sunday	$15 ÷ 3 = $5

C. 10 ÷ 5 = 2
2 pineapples are in each bag.

35 ÷ 7 = 5
5 flowers are in each bunch.

16 ÷ 4 = 4
4 whales are in each pod.

Lesson 19
Division Sentences

Warm-Up

8	6. 9
7	7. 8
10	8. 6
1	9. 7
0	10. 9

It's Your Turn

A.
1. Start at Column 8 or Row 8.
2. Start at Column 7 or Row 7.
3. Start at Column 5 or Row 5.

B.
1. Go to 24.
2. Go to 63.
3. Go to 30.

C.
1. $24 \div 8 = 3$
2. $63 \div 7 = 9$
3. $30 \div 5 = 6$

D.

1.	7	11.	6
2.	2	12.	8
3.	5	13.	3
4.	9	14.	4
5.	7	15.	6
6.	5	16.	9
7.	9	17.	2
8.	8	18.	9
9.	2	19.	8
10.	1	20.	7

E.
1. $12 \div 3 = 4$, $12 \div 4 = 3$
2. $10 \div 2 = 5$, $10 \div 5 = 2$
3. $8 \div 4 = 2$, $8 \div 2 = 4$
4. $16 \div 4 = 4$, $16 \div 4 = 4$

F. 1. $16 \div 8 = 2$
$16 \div 2 = 8$

xx or xxxxxxxx
xx xxxxxxxx
xx
xx
xx
xx
xx
xx

2. $12 \div 2 = 6$
$12 \div 6 = 2$

xxxxxx or xx
xxxxxx xx
xx
xx
xx
xx

3. $21 \div 7 = 3$
$21 \div 3 = 7$

xxxxxxx or xxx
xxxxxxx xxx
xxxxxxx xxx
xxx
xxx
xxx
xxx

4. $9 \div 3 = 3$
$9 \div 3 = 3$

xxx
xxx
xxx

5. $32 \div 8 = 4$
$32 \div 4 = 8$

xxxx or xxxxxxxx
xxxx xxxxxxxx
xxxx xxxxxxxx
xxxx xxxxxxxx
xxxx
xxxx
xxxx
xxxx

6. $30 \div 5 = 6$
$30 \div 6 = 5$

xxxxxx or xxxxx
xxxxxx xxxxx
xxxxxx xxxxx
xxxxxx xxxxx
xxxxxx xxxxx
xxxxx

Challenge Yourself

A. 1. $6 \times 2 = 12$
$2 \times 6 = 12$
$12 \div 6 = 2$
$12 \div 2 = 6$

2. $3 \times 5 = 15$
$5 \times 3 = 15$
$15 \div 5 = 3$
$15 \div 3 = 5$

3. 4 x 6 = 24
   6 x 4 = 24
   24 ÷ 6 = 4
   24 ÷ 4 = 6

4. 1 x 6 = 6
   6 x 1 = 6
   6 ÷ 6 = 1
   6 ÷ 1 = 6

B.
1. 6 6
2. 4 4
3. 6 6
4. 9 9
5. 8 8
6. 9 9
7. 6 6
8. 9 9
9. 8 8
10. 7 7

Lesson 20
Writing Division Sentences Another Way

Warm-Up

1. 9
2. 5
3. 1
4. 2
5. 5
6. 4
7. 2
8. 3

It's Your Turn

A.
1. 8
2. 6
3. 4
4. 6
5. 8

B.
1. 8
2. 6
3. 7
4. 5
5. 2
6. 3

C.
1. 42 – 7 = 35 – 7 = 28 – 7 = 21 – 7 = 14 – 7 = 7 – 7 = 0
2. 24 – 3 = 21 – 3 = 18 – 3 = 15 – 3 = 12 – 3 = 9 – 3 = 6 – 3 = 3 – 3 = 0
3. 28 – 7 = 21 – 7 = 14 – 7 = 7 – 7 = 0

D.

1.	7	6. 5
2.	8	7. 8
3.	6	8. 6
4.	9	9. 8
5.	4	10. 7

Challenge Yourself

A.
1. 3 x 5 = 15
   5 x 3 = 15
   15 ÷ 5 = 3
   15 ÷ 3 = 5
2. 3 x 9 = 27
   9 x 3 = 27
   27 ÷ 3 = 9
   27 ÷ 9 = 3
3. 5 x 4 = 20
   4 x 5 = 20
   20 ÷ 5 = 4
   20 ÷ 4 = 5
4. 4 x 8 = 32
   8 x 4 = 32
   32 ÷ 4 = 8
   32 ÷ 8 = 4
5. 5 x 8 = 40
   8 x 5 = 40
   40 ÷ 5 = 8
   40 ÷ 8 = 5

B.
1. 56 ÷ 7 = 8
   56 ÷ 8 = 7
2. 45 ÷ 9 = 5
   45 ÷ 5 = 9
3. 18 ÷ 6 = 3
   18 ÷ 3 = 6
4. 36 ÷ 9 = 4
   36 ÷ 4 = 9
5. 63 ÷ 9 = 7
   63 ÷ 7 = 9

C.
1. 48 ÷ 8 = 6
   6 cookies will go on each plate.
2. 35 ÷ 5 = 7
   There are 7 groups of students.

Lesson 21
Division Facts to 9

Warm-Up

1. 10
2. 32
3. 24
4. 30
5. 20
6. 16
7. 40
8. 24
9. 36
10. 25
11. 18
12. 20
13. 28
14. 35
15. 18
16. 27
17. 15
18. 21
19. 45
20. 6

It's Your Turn

A. 1. $10 \div 2 = 5$
$10 \div 5 = 2$

2. $9 \div 3 = 3$
$9 \div 3 = 3$

3. $36 \div 9 = 4$
$36 \div 4 = 9$

B. 1. $2 \times 9 = 18$
$9 \times 2 = 18$

2. $2 \times 3 = 6$
$3 \times 2 = 6$

3. $4 \times 6 = 24$
$6 \times 4 = 24$

4. $3 \times 5 = 15$
$5 \times 3 = 15$

C.

x	0	1	2	3	4	5	6	7	8	9	10
6	0	6	12	18	24	30	36	42	48	54	60

1. 4
2. 9
3. 10
4. 6
5. 2
6. 7

D.

x	0	1	2	3	4	5	6	7	8	9	10
7	0	7	14	21	28	35	42	49	56	63	70

1. 3
2. 5
3. 8
4. 7
5. 1
6. 9

E.

1. 2	2. 1	3. 1
4. 4	5. 6	6. 5
7. 3	8. 6	9. 8
10. 9		

F.

x	0	1	2	3	4	5	6	7	8	9	10
8	0	8	16	24	32	40	48	56	64	72	80

1. 5	2. 9	3. 10
4. 4	5. 8	6. 2

G.

x	0	1	2	3	4	5	6	7	8	9	10
9	0	9	18	27	36	45	54	63	72	81	90

1. 3	2. 7	3. 9
4. 5	5. 1	6. 8

H.

1. 5	2. 9	3. 1
4. 40	5. 8	6. 80

Challenge Yourself

1. $9 + 8 = 17$

   Mary rides 17 kilometres.

2. $80 \div 8 = 10$

   Each child received 10 jars of jam.

3. $54 \div 9 = 6$

   6 tents were needed.

Lesson 22
Division Facts of 1, 10, and 100

Warm-Up

1. 80
2. 20
3. 60
4. 0
5. 9
6. 50
7. 19
8. 120
9. 0
10. 4
11. 80
12. 480
13. 120
14. 300
15. 280
16. 800
17. 4800
18. 1200
19. 3000
20. 2800

It's Your Turn

A.

1. 7	2. 5	3. 0
4. 6	5. 0	6. 12
7. 0	8. 0	9. 7
10. 10	11. 5	12. 0
13. 0	14. 7	15. 500
16. 120	17. 60	18. 121
19. 100	20. 170	

B.

1. $100 \div 2 = 50$
   $= 10 \text{ tens} \div 2 = 5 \text{ tens}$
   $2\overline{)100}$ $\quad 50$

2. $160 \div 4 = 40$
   $= 16 \text{ tens} \div 4 = 4 \text{ tens}$
   $4\overline{)160}$ $\quad 40$

3. $90 \div 3 = 30$
   $= 9 \text{ tens } 3 = 3 \text{ tens}$
   $3\overline{)90}$ $\quad 30$

4. $250 \div 5 = 50$
   $= 25 \text{ tens} \div 5 = 5 \text{ tens}$
   $5\overline{)250}$ $\quad 50$

C. 1. $2100 \div 3 = 700$
$= 21 \text{ hundreds} \div 3 = 7 \text{ hundreds}$
$3\overline{)2100}$ → 700

2. $1500 \div 5 = 300$
$= 15 \text{ hundreds} \div 5 = 3 \text{ hundreds}$
$5\overline{)1500}$ → 300

3. $1400 \div 7 = 200$
$= 14 \text{ hundreds} \div 7 = 2 \text{ hundreds}$
$7\overline{)1400}$ → 200

4. $3500 \div 5 = 700$
$= 35 \text{ hundreds} \div 5 = 7 \text{ hundreds}$
$5\overline{)3500}$ → 700

Challenge Yourself

A. 1. 90
2. 600
3. 7
4. 80
5. 60
6. 70
7. 90
8. 900
9. 90
10. 400
11. 500
12. 600

B. 1. 9
2. 10
3. 30
4. 8

Lesson 23
Estimating Quotients

Warm-Up

A. 1. 1
2. 9
3. 1
4. 1
5. 32
6. 63
7. 1
8. 75
9. 62
10. 1

B.

1.	5		11.	9	
2.	6		12.	9	
3.	4		13.	8	
4.	7		14.	0	
5.	6		15.	7	
6.	8		16.	5	
7.	8		17.	4	
8.	7		18.	4	
9.	9		19.	4	
10.	8		20.	9	

It's Your Turn

Part One

A.

1. $8\overline{)\$39}$ — 4 fish
2. $8\overline{)\$59}$ — 7 fish
3. $8\overline{)\$15}$ — 1 fish
4. $8\overline{)\$41}$ — 5 fish

Part Two

B.

1.	$6\overline{)190}$	$6\overline{)186}$
2.	$8\overline{)270}$	$8\overline{)272}$
3.	$9\overline{)440}$	$9\overline{)441}$
4.	$5\overline{)160}$	$5\overline{)155}$

C. 1. $9\overline{)800}^{\,80}$ $9\overline{)819}^{\,91}$

2. $6\overline{)400}^{\,60}$ $6\overline{)390}^{\,65}$

3. $8\overline{)300}^{\,30}$ $8\overline{)312}^{\,39}$

4. $200 \div 4 = 50$ $212 \div 4 = 53$

Part Three

D. 1. $80\overline{)680}^{\,8}$

2. $50\overline{)390}^{\,7}$

3. $60\overline{)430}^{\,7}$

E. 1. $60\overline{)4300}^{\,70}$

2. $1700 \div 30 = 50$

3. $50\overline{)3700}^{\,70}$

4. $80\overline{)6400}^{\,80}$

No Challenge Yourself

Lesson 24
Review

A.

1.	4	11.	8
2.	2	12.	3
3.	3	13.	3
4.	0	14.	8
5.	6	15.	4
6.	8	16.	7
7.	10	17.	9
8.	3	18.	9
9.	2	19.	5
10.	2	20.	2

B.

1. $16 \div 8 = 2$
2. $\$28 \div \$4 = \$7$
3. $10 \div 10 = 1$
4. $15 \div 3 = 5$

C.

1. $12 \div 6 = 2$
   $12 \div 2 = 6$
2. $30 \div 5 = 6$
   $30 \div 6 = 5$
3. $24 \div 6 = 4$
   $24 \div 4 = 6$

D.

1. $2 \times 3 = 6$
   $3 \times 2 = 6$
2. $4 \times 7 = 28$
   $7 \times 4 = 28$
3. $9 \times 5 = 45$
   $5 \times 9 = 45$
4. $2 \times 5 = 10$
   $5 \times 2 = 10$

5. $36 \div 4 = 8$

   $4 \times 9 = 36$

   $9 \times 4 = 36$

   $36 \div 4 = 9$

6. $5 \times 8 = 40$

   $8 \times 5 = 40$

E.

$$\underline{\text{divisor}} \leftarrow 8\overline{)40} \rightarrow \underline{\text{dividend}}, \quad 5 \rightarrow \underline{\text{quotient}}$$

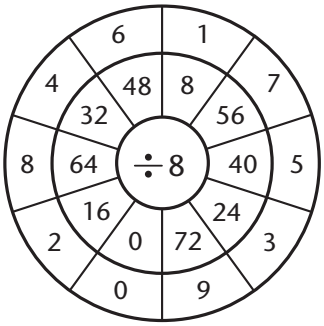
$$\underline{\text{dividend}} \leftarrow 40 \div 8 = 5 \rightarrow \underline{\text{quotient}}, \quad \underline{\text{divisor}}$$

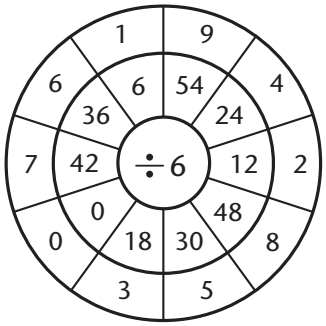
F. 1. $7\overline{)42}$ = 6

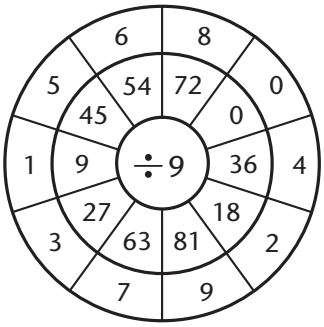
2. $5\overline{)30}$ = 6

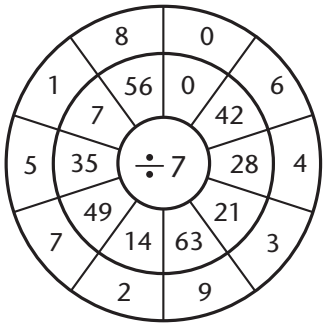
3. $1\overline{)6}$ = 6

G.









H.
1. 10
2. 7
3. 0
4. 360
5. 600
6. 8
7. 270
8. 90
9. 0
10. 90

I.
1. 9
2. 6
3. 8
4. 8
5. 7

J.
1. $6\overline{)350}$ = 50
2. $7\overline{)1800}$ = 200

K. $6\overline{)2000}$ = 300

They travelled about 300 km each day.

Lesson 25
Division of 2-Digit Numbers With No Remainders

Warm-Up

1. 8
2. 8
3. 6
4. 9
5. 7
6. 4
7. 8
8. 0
9. 6
10. 7
11. 8
12. 8
13. 8
14. 9
15. 3
16. 10
17. 4
18. 20
19. 7
20. 1

It's Your Turn

A. 1.
$$\begin{array}{r} 19 \\ 3\overline{)57} \\ -3\downarrow \\ 27 \\ -27 \\ 0 \end{array}$$

2.
$$\begin{array}{r} 40 \\ 2\overline{)80} \\ -8\downarrow \\ 00 \end{array}$$

3.
$$\begin{array}{r} 17 \\ 5\overline{)85} \\ -5\downarrow \\ 35 \\ -35 \\ 0 \end{array}$$

4.
$$\begin{array}{r} 12 \\ 4\overline{)48} \\ -4\downarrow \\ 08 \\ -8 \\ 0 \end{array}$$

B. 1.
$$\begin{array}{r} 18 \\ 5\overline{)95} \\ -5\downarrow \\ 45 \\ -45 \\ 0 \end{array}$$

5 x 18 = 90

2.
$$\begin{array}{r} 14 \\ 6\overline{)78} \\ -6\downarrow \\ 18 \\ -18 \\ 0 \end{array}$$

6 x 14 = 84

3.
$$\begin{array}{r} 18 \\ 4\overline{)72} \\ -4\downarrow \\ 32 \\ -32 \\ 0 \end{array}$$

4 x 18 = 72

4.
$$\begin{array}{r} 34 \\ 2\overline{)68} \\ -6\downarrow \\ 08 \\ -8 \\ 0 \end{array}$$

2 x 34 = 68

C.

31	21	17	16
3)93	4)84	5)85	6)96
9↓	8↓	5↓	6↓
03	04	35	36
3	4	35	36
0	0	0	0

12	14	10	23
8)96	7)98	9)90	4)92
8↓	7↓	9↓	8↓
16	28	00	12
16	28	0	12
0	0	0	0

D. 1.
15
6)90
6↓
30
30
0

15 bags can be filled.

2.
13
5)65
5↓
15
15
0

You will get 13 nickels.

No Challenge Yourself

Lesson 26
Division of 3-Digit Numbers With No Remainders

Warm-Up

1. x
2. 3
3. 5
4. x
5. 2
6. 5
7. 2
8. 0
9. 0
10. 7

It's Your Turn

A.

1. $5\overline{)685}$ → 137; 500; 185; 150; 35; 35; 0
2. $4\overline{)964}$ → 241; 800; 164; 160; 4; 4; 0
3. $7\overline{)924}$ → 132; 700; 224; 210; 14; 14; 0
4. $3\overline{)672}$ → 224; 600; 72; 60; 12; 12; 0

8. $6\overline{)438}$ → 73; 420; 18; 18; 0
6. $9\overline{)567}$ → 63; 540; 27; 27; 0
7. $6\overline{)936}$ → 156; 600; 336; 300; 36
8. $6\overline{)438}$ → 73; 420; 18; 18; 0

Challenge Yourself

1. $6\overline{)222}$ → 37 cars; 180; 42; 42; 0

37 cars were delivered to each lot.

2. $4\overline{)\$184}$ → \$46; 160; 24; 24; 0

Each received \$46.

Lesson 27
Division With Remainders

Warm-Up

1. 2
2. 3
3. 1
4. 3
5. 3
6. 3
7. 6
8. 2
9. 8
10. 2
11. 0
12. 3
13. 3
14. 1
15. 4
16. 3
17. 2
18. 0
19. 1
20. 6

It's Your Turn

A.

1. $9\overline{)64}$ = 7 R 1

-63

1

2. $8\overline{)19}$ = 2 R 3

-16

3

3. $7\overline{)29}$ = 4 R 1

-28

1

4. $6\overline{)14}$ = 2 R 2

-12

2

5. $5\overline{)44}$ = 8 R 4

-40

4

6. $3\overline{)20}$ = 6 R 2

-18

2

7. $2\overline{)19}$ = 9 R 1

-18

1

8. $4\overline{)35}$ = 8 R 3

-32

3

B.

1. $4\overline{)19}$ R 3
   -16
   3

2. $5\overline{)45}$
   -45
   0

3. $7\overline{)45}$ R 3
   -42
   3

4. $6\overline{)31}$ R 1
   -30
   1

5. $8\overline{)37}$ R 5
   -32
   5

6. $9\overline{)55}$ R 1R 1
   -54
   1

7. $8\overline{)64}$
   -64
   0

8. $5\overline{)17}$ R 2
   -15
   2

C. $4\overline{)25}$ R1
-24
1

6 benches can be built. 1 piece of wood is left over.

Challenge Yourself

A.

1. $6\overline{)\$0.96}$ 1 chocolate cookie costs $0.16
   6
   36
   36
   0

2. $3\overline{)\$19.86}$ Each shirt cost $6.62.
   18
   18
   18
   06
   6
   0

3. $6 \times 351 = 2106$ trees

$$\begin{array}{r} 234 \\ 9\overline{)2106} \\ \underline{18} \\ 30 \\ \underline{27} \\ 36 \\ 0 \end{array}$$

trees for each tree planter

4.
$$\begin{array}{r} \$2.49 \\ 3\overline{)\$7.47} \\ \underline{6} \\ 14 \\ \underline{12} \\ 27 \\ \underline{27} \\ 0 \end{array} \qquad \begin{array}{r} \$2.46 \\ 4\overline{)\$9.84} \\ \underline{8} \\ 18 \\ \underline{16} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

Each of Lynn's books cost $2.49.
Each of Sandy's books cost $2.46.
So, 4 for $9.84 is a better buy.

Lesson 28
Dividing 2-Digit Numbers With Remainders

Warm-Up

1. 9
2. 8
3. 5
4. 2
5. 3
6. 1
7. 4
8. 6
9. 7
10. 10
11. 0
12. 8

It's Your Turn

A. 1.
$$\begin{array}{r} 23 \text{ R } 1 \\ 2\overline{)47} \\ -\underline{4} \\ 07 \\ -\underline{6} \\ 1 \end{array}$$

2.
$$\begin{array}{r} 13 \text{ R } 2 \\ 5\overline{)67} \\ -\underline{5} \\ 17 \\ -\underline{15} \\ 2 \end{array}$$

3. $8\overline{)91}$ R 3
-8
11
-8
3

4. $6\overline{)75}$ R 3
-6
15
-12
3

B. 1. $5\overline{)87}$ R 2
-5
37
-35
2

$\begin{array}{r} {\scriptstyle 3} \\ 17 \\ \times 5 \\ \hline 85 \\ +2 \\ \hline 87 \end{array}$

2. $4\overline{)74}$ R 2
-4
34
-32
2

$\begin{array}{r} {\scriptstyle 3} \\ 18 \\ \times 4 \\ \hline 72 \\ +2 \\ \hline 74 \end{array}$

3. $\overline{)88}$
-8
08
-8
0

$\begin{array}{r} 22 \\ \times 4 \\ \hline 88 \end{array}$

4. $6\overline{)68}$ R 4
-64
4

$\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \\ +4 \\ \hline 68 \end{array}$

5. $3\overline{)46}$ R 1
-3
16
-15
1

$\begin{array}{r} {\scriptstyle 1} \\ 15 \\ \times 3 \\ \hline 45 \\ +1 \\ \hline 46 \end{array}$

6. $7\overline{)87}$ R 3
-7
17
-14
3

$\begin{array}{r} {\scriptstyle 1} \\ 12 \\ \times 7 \\ \hline 84 \\ +3 \\ \hline 87 \end{array}$

C. 1. $4\overline{)94}$ R 2
-8
14
-12
2

He can make 23 loaves of bread with 2 cups of flour left over.

2.
$$\begin{array}{r} 11\text{ R }2 \\ 8\overline{)90} \\ -\underline{8} \\ 10 \\ -\underline{8} \\ 2 \end{array}$$

He can make 11 bracelets, and he will have 2 paper clips left over.

3.
$$\begin{array}{r} 15\text{ R }2 \\ 3\overline{)47} \\ -\underline{3} \\ 17 \\ -\underline{15} \\ 2 \end{array}$$

She can make 15 bracelets with 2 pieces of yarn left over.

Challenge Yourself

A.

1.	33		11.	83
2.	38		12.	22
3.	67		13.	29
4.	11		14.	35
5.	41		15.	31
6.	48		16.	51
7.	54		17.	108
8.	26		18.	25
9.	28		19.	58
10.	17		20.	15

B.

1.	323	2.	489
3.	901	4.	1589
5.	1881	6.	5455
7.	1266	8.	1172
9.	1839	10.	423

Lesson 29
Division of 3-Digit Numbers With No Remainders

Warm-Up

1. 45
2. 32
3. 42
4. 20
5. 18
6. 44

It's Your Turn

A. 1.
$$\begin{array}{r} 113 \\ 3\overline{)339} \\ -\underline{3} \\ 03 \\ -\underline{3} \\ 09 \\ -\underline{9} \\ 0 \end{array}$$

2.
$$\begin{array}{r} 113 \\ 5\overline{)565} \\ -\underline{5} \\ 06 \\ -\underline{5} \\ 15 \\ -\underline{15} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 129 \\ 2\overline{)258} \\ -\underline{2} \\ 05 \\ -\underline{4} \\ 18 \\ -\underline{18} \\ 0 \end{array}$$

4.
$$\begin{array}{r} 112 \\ 8\overline{)896} \\ -\underline{8} \\ 09 \\ -\underline{8} \\ 16 \\ -\underline{16} \\ 0 \end{array}$$

5.
$$\begin{array}{r} 132 \\ 7\overline{)924} \\ -\underline{7} \\ 22 \\ -\underline{21} \\ 14 \\ -\underline{14} \\ 0 \end{array}$$

6.
$$\begin{array}{r} 190 \\ 4\overline{)760} \\ -\underline{4} \\ 36 \\ -\underline{36} \\ 00 \end{array}$$

B. 1. 3 digits
2. 2 digits
3. 2 digits
4. 3 digits

C. 1.
$$\begin{array}{r} 321 \\ 33\overline{)963} \\ -\underline{9} \\ 06 \\ -\underline{6} \\ 03 \\ -\underline{3} \\ 0 \end{array}$$

2.
$$\begin{array}{r} 227 \\ 2\overline{)454} \\ -\underline{4} \\ 05 \\ -\underline{4} \\ 14 \\ -\underline{14} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 116 \\ 8\overline{)928} \\ -\underline{8} \\ 12 \\ -\underline{8} \\ 48 \\ -\underline{48} \\ 0 \end{array}$$

4.
$$\begin{array}{r} 116 \\ 6\overline{)696} \\ -\underline{6} \\ 09 \\ -\underline{6} \\ 36 \\ -\underline{36} \\ 0 \end{array}$$

5.
$$\begin{array}{r} 70 \text{ R } 2 \\ 3\overline{)212} \\ -\underline{21} \\ 02 \end{array}$$

6.
$$\begin{array}{r} 118 \text{ R } 1 \\ 2\overline{)237} \\ -\underline{2} \\ 03 \\ -\underline{2} \\ 17 \\ -\underline{16} \\ 1 \end{array}$$

Challenge Yourself

A. 1. $500 \div 7 = 70$

2. $700 \div 9 = 77$

B. 1.
$$\begin{array}{r} 51 \text{ R } 3 \\ 9\overline{)462} \\ -\underline{45} \\ 12 \\ -\underline{9} \\ 3 \end{array}$$

$$\begin{array}{r} 51 \\ \times 9 \\ \hline 459 \\ +3 \\ \hline 462 \end{array}$$

2.
$$\begin{array}{r} 143 \\ 5\overline{)715} \\ -\underline{5} \\ 21 \\ -\underline{20} \\ 15 \\ -\underline{15} \\ 0 \end{array}$$

$$\begin{array}{r} 21 \\ 143 \\ \times 5 \\ \hline 715 \end{array}$$

Lesson 30
Division With Zero in the Quotient

Warm-Up

1. 107
2. 204
3. 321
4. 420
5. 742
6. 515
7. 648
8. 909
9. 324
10. 872

B.
1. 312
2. 71 remainder 6
3. 132 remainder 4
4. 224
5. 85 remainder 1
6. 87 remainder 3

It's Your Turn

A.
1. $6\overline{)926}$ — 3 digits in quotient
2. $5\overline{)355}$ — 2 digits in quotient
3. $7\overline{)428}$ — 2 digits in quotient
4. $2\overline{)127}$ — 2 digits in quotient

B. 1. $7\overline{)350}$ → 50; −35; 00

2. $8\overline{)808}$ → 101; −8; 008; −8; 0

3. $6\overline{)654}$ → 109; −6; 054; −54; 0

4. $9\overline{)180}$ → 20; −18; 00

5. $3\overline{)302}$ → 100 R 2; −3; 002; −0; 2

6. $8\overline{)164}$ → 20 R 4; −16; 04

C. 1. $2\overline{)204}$ → 102; −2; 004; −4; 0

2. $7\overline{)630}$ → 90; −63; 00

3. $8\overline{)407}$ → 50 R 7; −40; 07

4. $5\overline{)505}$ → 101; −5; 005; −5; 0

Challenge Yourself

A. 1. $8\overline{)69}$ → 8

2. $3\overline{)16}$ → 5

3. $9\overline{)29}$ → 3

4. $7\overline{)45}$ → 6

5. $6\overline{)19}$ → 3

6. $5\overline{)116}$ → 2

7. $6\overline{)43}$ → 7

8. $8\overline{)42}$ → 5

Lesson 31
Division With a 2-Digit Divisor

Warm-Up

1. $7\overline{)987}$ → 141; 7; 28; 28; 07; 7; 0

2. $4\overline{)392}$ → 98; 36; 32; 32; 0

3. $8\overline{)352}$ → 44; 32; 32; 32; 0

4. $7\overline{)392}$ → 56; 35; 42; 42; 0

5. $3\overline{)974}$ → 324; 9; 07; 6; 14; 12; 2

6. $5\overline{)376}$ → 75; 35; 26; 25; 1

7. $6\overline{)3981}$ → 663; 36; 38; 36; 21; 18; 3

8. $9\overline{)2987}$ → 331; 27; 28; 27; 17; 9; 8

It's Your Turn

1. $73\overline{)219}$ → 3; 219; 0

2. $48\overline{)729}$ → 15; 48; 249; 240; 9

3. $55\overline{)685}$ → 12; 55; 135; 110; 25

4. $48\overline{)6381}$ → 132; 48; 158; 144; 141; 96; 45

5. $27\overline{)3894}$ → 144; 27; 119; 108; 114; 108; 6

Challenge Yourself

A. 1. $50\overline{)390}$ $\quad\quad$ 2. $880 \div 40 = 20$

3. $60\overline{)430}$ $\quad\quad$ 4. $60\overline{)730}$

B. 1. Mary had 26.

82 + 17 = 99
John had 99 marbles.

2. They drove 2500 km.

10 x $90 = $900
The hotel bill was $900.

3. Harley had $9.

$1.25 + .85 + .85 = $2.95
Harley spent $2.95.

Lesson 32
Review

A.

$7\overline{)35}$	$9\overline{)27}$	$6\overline{)24}$	$7\overline{)49}$	$8\overline{)48}$	$9\overline{)36}$
$5\overline{)40}$	$3\overline{)24}$	$2\overline{)16}$	$6\overline{)48}$	$7\overline{)28}$	$9\overline{)54}$
$5\overline{)15}$	$4\overline{)12}$	$2\overline{)12}$	$3\overline{)0}$	$6\overline{)54}$	$3\overline{)27}$
$4\overline{)20}$	$8\overline{)56}$	$6\overline{)30}$	$4\overline{)24}$	$3\overline{)21}$	$5\overline{)30}$
$8\overline{)16}$	$5\overline{)35}$	$4\overline{)16}$	$8\overline{)64}$	$9\overline{)63}$	$8\overline{)40}$

B.

1. $4\overline{)96}$ → 24; 8, 16, 16, 0
2. $2\overline{)647}$ R1 → 323; 6, 04, 4, 07, 6, 1
3. $8\overline{)94}$ R6 → 11; 8, 14, 8, 6
4. $6\overline{)252}$ → 42; 24, 12, 12, 0
5. $6\overline{)832}$ R4 → 138; 6, 23, 18, 52, 48, 4
6. $4\overline{)68}$ → 17; 4, 28, 28, 0
7. $9\overline{)547}$ R7 → 60; 54, 07, 0, 7
8. $7\overline{)84}$ → 12; 7, 14, 14, 0
9. $8\overline{)94}$ R6 → 11; 8, 14, 8, 6
10. $5\overline{)175}$ → 35; 15, 25, 25, 0
11. $3\overline{)87}$ → 29; 6, 27, 27, 0
12. $2\overline{)121}$ R1 → 60; 12, 01, 0, 1
13. $4\overline{)732}$ → 183; 4, 33, 32, 12, 12, 0
14. $5\overline{)930}$ → 186; 5, 43, 40, 30, 30, 0
15. $3\overline{)89}$ R2 → 29; 6, 29, 27, 2
16. $5\overline{)68}$ R3 → 13; 5, 18, 15, 3
17. $7\overline{)615}$ R6 → 87; 56, 55, 49, 6
18. $6\overline{)76}$ R4 → 12; 6, 16, 12, 4
19. $4\overline{)248}$ → 62; 24, 08, 8, 0
20. $3\overline{)79}$ R1 → 26; 6, 19, 18, 1

C.

1.
$$\begin{array}{r} \$.82 \\ 3\overline{)\$2.46} \\ \underline{24}\downarrow \\ 06 \\ \underline{6} \\ 0 \end{array} \qquad \begin{array}{r} \$.82 \\ \times 3 \\ \hline \$2.46 \end{array}$$

2.
$$\begin{array}{r} \$1.74 \\ 9\overline{)\$15.66} \\ \underline{09}\downarrow\downarrow \\ 66 \\ \underline{63} \\ 36 \\ \underline{36} \\ 0 \end{array} \qquad \begin{array}{r} \$1.74 \\ \times 9 \\ \hline \$15.66 \end{array}$$

3.
$$\begin{array}{r} \$15.64 \\ 4\overline{)\$62.56} \\ \underline{4}\downarrow\downarrow\downarrow \\ 22 \\ \underline{20} \\ 25 \\ \underline{24} \\ 16 \\ \underline{16} \\ 0 \end{array} \qquad \begin{array}{r} \$15.64 \\ \times 4 \\ \hline \$62.56 \end{array}$$

D.
1. 40
2. 50
3. 100
4. 20
5. 30
6. 70

E.

1. $9\overline{)758}$ R2 — 84; 72↓; 38; 36; 2
2. $6\overline{)525}$ R3 — 87; 48↓; 45; 42; 3
3. $3\overline{)269}$ R2 — 89; 24↓; 29; 27; 2
4. $8\overline{)808}$ — 101; 8↓↓; 008; 8; 0
5. $9\overline{)1827}$ — 203; 18↓↓; 027; 27; 0
6. $5\overline{)450}$ — 90; 45↓; 00
7. $4\overline{)1234}$ R2 — 308; 12↓; 034; 32; 2
8. $7\overline{)350}$ — 50; 35↓; 00

F. 1. 8 2. 2 3. 2

2. a. $26\overline{)940}$ $30\overline{)940}$ b. $46\overline{)5312}$ $50\overline{)5300}$

c. $72\overline{)359}$ $70\overline{)360}$ d. $75\overline{)6235}$ $80\overline{)6200}$

G.

1. $16\overline{)88}$ R8 — 5; 80; 0
2. $19\overline{)114}$ — 6; 114; 0
3. $36\overline{)756}$ — 21; 72↓; 36; 36; 0
4. $25\overline{)330}$ R5 — 13; 25↓; 80; 75; 5
5. $23\overline{)94}$ — 4; 92; 2
6. $63\overline{)9008}$ R62 — 142; 63↓↓; 270; 252; 188; 126; 62

Mastery Test—Division
Answer Key

1. Complete the basic facts equations.

$3\overline{)15}$	$6\overline{)24}$	$1\overline{)5}$	$8\overline{)32}$	$4\overline{)24}$
$5\overline{)35}$	$1\overline{)7}$	$6\overline{)12}$	$7\overline{)7}$	$9\overline{)27}$
$3\overline{)9}$	$4\overline{)16}$	$2\overline{)16}$	$3\overline{)21}$	$1\overline{)9}$
$8\overline{)48}$	$7\overline{)21}$	$5\overline{)45}$	$9\overline{)45}$	$6\overline{)0}$
$9\overline{)63}$	$4\overline{)0}$	$3\overline{)27}$	$7\overline{)35}$	$8\overline{)64}$

2. Write two division sentences from each set of numbers.

a. 6, 48, 8

$48 \div 6 = 8$

$48 \div 8 = 6$

b. 7, 35, 5

$35 \div 7 = 5$

$35 \div 5 = 7$

3. Name the parts of this division question.

$$10 \rightarrow \text{quotient}$$
$$\text{divisor} \leftarrow 5\overline{)50} \rightarrow \text{dividend}$$

Part B

1. Divide.

a. $4000 \div 10 = 400$

b. $100\overline{)700}$ = 7

c. $367 \div 1 = 367$

d. $7\overline{)4900}$ = 70

e. $45 \div 0 = 0$

f. $640 \div 8 = 80$

2. Complete each of the following questions. Show any remainders.

a. $8\overline{)96}$ = 12

8↓
16
16
0

b. $9\overline{)315}$ = 35

27↓
45
45
0

c. $4\overline{)97}$ R1 = 24

8↓
17
16
1

d. $7\overline{)962}$ R3 = 137

7↓↓
26
21
52
49
3

e. $4\overline{)127}$ R3 = 31

12↓
07
4
3

f. $5\overline{)86}$ R1 = 17

5↓
36
35
1

g. $7\overline{)784}$ = 112

7↓↓
08
07
14
14
0

h. $3\overline{)81}$ = 27

6↓
21
21
0

i. $8\overline{)296}$ = 37

24↓
56
56
0

j. $2\overline{)47}$ R1 = 23

4↓
07
6
1

k. $6\overline{)224}$ R2 = 37

18↓
44
42
2

l. $4\overline{)72}$ = 18

4↓
32
32
0

m. $3\overline{)82}$ R1 = 27

6↓
22
21
1

n. $5\overline{)653}$ R3 = 130

5↓↓
15
15
03
0
3

o. $6\overline{)462}$ = 77

42↓
42
42
0

p. $6\overline{)72}$ = 12

6↓
12
12
0

3. Divide. Check by multiplying.

a.
$$5\overline{)\$6.75} = \$1.35$$
5 ↓↓
17
15
25
25
0

b.
$$7\overline{)\$78.47} = \$11.21$$
7 ↓↓↓
08
7
14
14
07
7
0

$\$1.35 \times 5 = \$6.75$

$\$11.21 \times 7 = \$78.47$

c. The Smith's new car cost $21 452. It took them 4 years to pay for the car. How much did they pay each year?

c.
$$4\overline{)\$21\,452} = \$5363$$
20 ↓↓↓
14
12
25
24
12
12
0

$\$5363 \times 4 = \$21\,452$

Statement: **They paid $5363 each year.**

Part C

1. Divide:

a. $4\overline{)120} = 30$ or $4\overline{)120} = 30$
12 ↓
00

b. $9\overline{)270} = 30$ or $9\overline{)270} = 30$
27 ↓
00

c. $2\overline{)100} = 50$ or $2\overline{)100} = 50$
10 ↓
00

d. $7\overline{)5600}$ or $7\overline{)5600}$

$$\begin{array}{r} 800 \\ 7\overline{)5600} \\ \underline{56}\downarrow\downarrow \\ 000 \end{array}$$

e. $5\overline{)4500}$ or $5\overline{)4500}$

$$\begin{array}{r} 900 \\ 5\overline{)4500} \\ \underline{27}\downarrow\downarrow \\ 000 \end{array}$$

2. Divide. Show remainders where necessary.

1. $$\begin{array}{r} 102 \\ 2\overline{)204} \\ -\underline{2} \\ 004 \\ -\underline{4} \\ 0 \end{array}$$

2. $$\begin{array}{r} 90 \\ 7\overline{)630} \\ -\underline{63} \\ 00 \end{array}$$

5. $$\begin{array}{r} 50\ \text{R } 7 \\ 8\overline{)407} \\ -\underline{40} \\ 07 \end{array}$$

4. $$\begin{array}{r} 101 \\ 5\overline{)505} \\ -\underline{5} \\ 005 \\ -\underline{5} \\ 0 \end{array}$$

Part D

1. Estimate the largest quotient for each question.

a. $2\overline{)13}$ (6) b. $3\overline{)29}$ (9) c. $4\overline{)18}$ (4)

d. $51 \div 7 = 7$ e. $17 \div 9 = 9$ f. $17 \div 9 = 1$

2. Round the dividend to the nearest 10 and estimate the quotient. Show your work.

2. a. $9\overline{)440}$ (40)

b. $8\overline{)270}$ (30)

c. $5\overline{)160}$ (30)

3. Estimate by rounding off to the nearest 100. Show your estimation.

a. $9\overline{)800}$ (80) $9\overline{)819}$ (91)

b. $200 \div 4 = 50$ $212 \div 4 = 53$

c. $1800 \div 7 = 200$ $1778 \div 7 = 254$

d. $6\overline{)2100}$ $\quad 300$ $\qquad$ $6\overline{)2124}$ $\quad 354$

4. Estimate the quotients. Round the dividends and divisors to the nearest 10's or 100's. Show your estimations.

a. $61\overline{)325}$ $\qquad$ $60\overline{)300}$ $\quad 5$ $\qquad$ b. $64\overline{)5632}$ $\qquad$ $60\overline{)5600}$ $\quad 900$

Part E

1. Divide. Check each answer with your calculator.

a. $14\overline{)84}$ $\quad 6$

$\underline{84}$

0

b. $32\overline{)836}$ $\quad 26$ R4

$\underline{64}$ ↓

196

$\underline{192}$

4

c. $36\overline{)672}$ $\quad 18$ R24

$\underline{36}$ ↓

312

$\underline{288}$

24

d.
$$\begin{array}{r} 18 \\ 45\overline{)810} \\ \underline{45}\downarrow \\ 360 \\ \underline{360} \\ 0 \end{array}$$

e.
$$\begin{array}{r} 213 \\ 42\overline{)8956}\ \text{R10} \\ \underline{84}\downarrow\downarrow \\ 55 \\ \underline{42} \\ 136 \\ \underline{126} \\ 10 \end{array}$$

2. Before solving these problems, think of the key words and phrases in the problems. Read each problem carefully. Show all your work and include a statement answer.

   a. April has 30 days. How many full weeks are in April? How many days are left over.

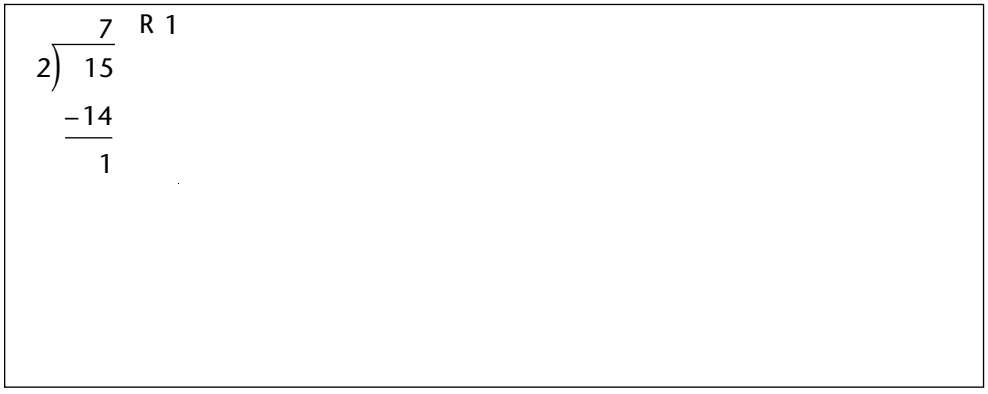
$$\begin{array}{r} 4\ \text{R}\ 2 \\ 7\overline{)\ 30} \\ -28 \\ \hline 2 \end{array}$$

Statement: **April has 4 full weeks. 2 days are left over.**

b. Some children rolled 27 large snowballs to make some snowmen. Each snowman needs 3 snowballs. How many snowmen can be made? How many snowballs will not be needed?

Statement: **9 snowmen can be built. There are no extra snowballs.**

c. Jerry has 15 bicycle wheels. How many bicycles can he make with these wheels? How many wheels will be left over?



Statement: **7 bicycles can be built. 1 wheel will be left over**.

3. Circle the unnecessary information and then solve the problems. Show all your work and include a statement answer.

   a. Harley had $9. He bought potato chips for $1.25 and 2 cans of soda pop ~~at 85¢~~ each. How much money did Harley spend?

   $1.25 + .85 + .85 = $2.95

   Statement: Harley spent $2.95

   b. ~~Lillie's Bakery hires 5 girls or boys~~ to work on their busiest day, Saturday. If the bakery is open for 8 hours and $150 is taken in each hour, how much money is taken altogether?

   $$\begin{array}{r} {\scriptstyle 4} \\ \$150 \\ \times 8 \\ \hline \$1200 \end{array}$$

   Statement: The bakery makes $1200.

Glossary

You may find these definitions useful when you are explaining multiplication and division concepts to your child.

array: an arrangement that shows objects in rows and columns.

division: the process of sharing a number of items to find how many equal groups can be made or how many items will be in a group.

dividend: the number that is being divided in a division problem.

divisor: the number that divides the dividend

equal groups: collection that each have the same number

fact family: the four number sentences that show how three number are related

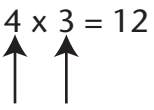
Example:

4 x 3 = 12 12 ÷ 3 = 4

3 x 4 = 12 12 ÷ 4 = 3

factor: a number that is multiplied by another number to find a product

Example:



inverse: opposite

multiple: a number that is the product of a given number multiplied by a whole number such as 1, 2, 3, 4 and so on.

Example:

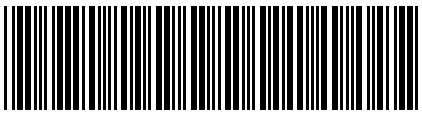
3	4	5	6	
x4	x4	x4	x4	
12	6	20	24	← multiples of 4

multiplication: the process of finding the total number of items that are in a certain number of equal groups.

product: the answer to a multiplication problem

quotient: the answer in a division problem

remainder: the number that is left over after dividing into equal groups.



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