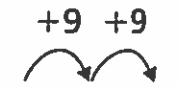
Name: _____ Date: _____

Scaffolding for Lesson 1, Question 8

STUDENT BOOK PAGE 301

8. Brandon calculated 63 ÷ 9 by recalling that 45 ÷ 9 = 5 and then skip counting forward by 9s to 63.



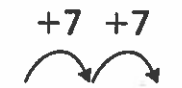
Use a strategy like Brandon's to calculate each quotient.

45 ÷ 9 = 5
63 ÷ 9 = 5 + 2
63 ÷ 9 = 7

a) 28 ÷ 7

Choose *any* multiple of 7 that is less than 28, for example, 14.

Divide: 14 ÷ 7 = 2



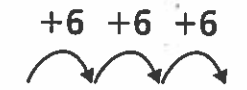
2 groups of 7 + 2 more groups of 7 is 4 groups of 7.

So 28 ÷ 7 = _____

b) 42 ÷ 6

Choose *any* multiple of 6 that is less than 42, for example, 24.

Divide: 24 ÷ 6 = 4



4 groups of 6 + 3 more groups of 6 is ____ groups of 6.

So 42 ÷ 6 = _____

c) 32 ÷ 4 = _____

d) 32 ÷ 8 = _____

Name: _____ Date: _____

Chapter 9 Lesson 1

Division Fact Strategies

GOAL

Use strategies to relate unknown facts to known facts.

1. Use the array to complete each equation.

a) 15 ÷ 5 = _____

b) 25 ÷ 5 = _____

2. Sketch an array to determine each quotient.

a) 12 ÷ 3 = _____

b) 24 ÷ 4 = _____

c) 21 ÷ 3 = _____

d) 40 ÷ 5 = _____

e) 42 ÷ 6 = _____

At-Home Help

You can use arrays to complete division equations. For example: 18 ÷ 3 = ■

I will use 18 counters to make an array with 3 rows.

There are 6 counters in each row, so 18 ÷ 3 = 6.

Name: _____ Date: _____

9.1 Division Fact Strategies Page 1

Student Book pages 298–301

GOAL

Use strategies to relate unknown facts to known facts.

You will need

- counters

Desmond has a deck of 48 playing cards.

There were no instructions for playing, so Desmond invented his own game.

Here are 2 of his rules:

- All players start with the same number of cards.
- There must be fewer than 10 players, and each player must have less than 10 cards.

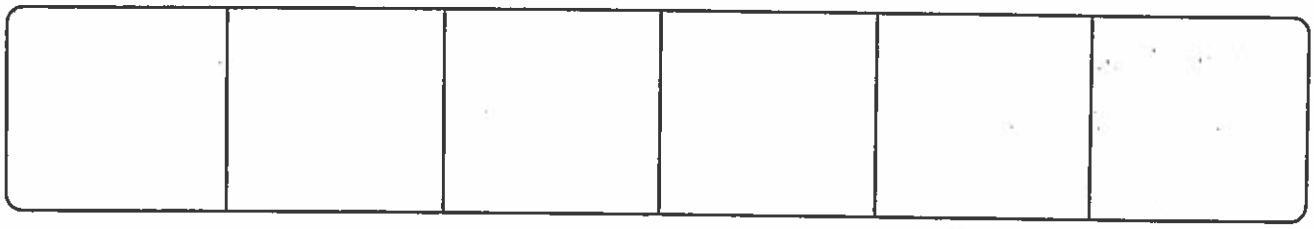
How many players can play Desmond's game using all 48 cards, with no leftover cards?

A. Suppose there are 6 players.

Share 48 counters between 6 groups.

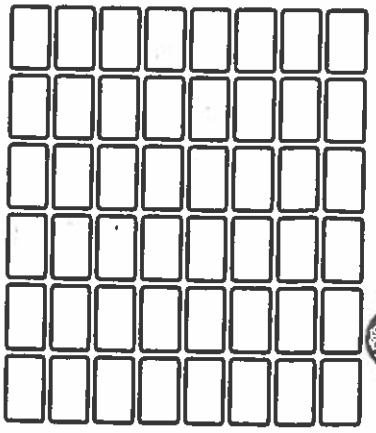
Place an equal number of counters in each group.

Hint: Place 1 counter in each group, and then repeat this step until you have used all the counters.



How many counters are in each group? _____

How many cards will each player have? _____



B. Desmond created an array of playing cards.

The columns show the number of players.

There are _____ columns.

The rows show the number of cards.

There are _____ rows.

Name: _____ Date: _____

9.1 Division Fact Strategies Page 2

C. What 2 multiplication facts does the array show?

Fact #1: number of rows × number of columns = _____ × _____

Fact #2: number of columns × number of rows = _____ × _____

D. What 2 division facts does the array show?

Fact #1: 48 ÷ number of columns = 48 ÷ _____

Fact #2: 48 ÷ number of rows = 48 ÷ _____

E. Skip count by 5s.

5, _____, _____, _____, _____, _____, _____, _____, _____, _____

Why can't there be 5 players?

_____

_____

F. Could there be any other number of players (less than 10) with no leftover cards?

Hint: Think of all the ways to multiply 2 numbers to make 48.

_____

_____

_____

Reflecting

Why is creating an array a useful way to figure out a division fact?

_____

_____

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9.1 Division Fact Strategies Page 1

Student Book pages 298–301

Checking

You will need

- counters

1. Suppose Desmond's game used 36 cards instead of 48 cards.

His rules remain the same:

- All players start with the same number of cards.
- There must be fewer than 10 players, and each player must have less than 10 cards.

How many players could play his game?

a) Arrange the counters into an array. Write the multiplication sentence.

_____ × _____

How many players can play the game? _____

b) Arrange the counters into a different array. Write the multiplication sentence.

_____ × _____

How many players can play the game? _____

c) How many other players can play Desmond's game?

_____

Practising

3. Sketch an array to complete the division equation.

a) 18 ÷ 2 = ▒

Use 18 counters to make 2 equal rows. Sketch the array below.

How many counters are in each row? _____

18 ÷ 2 = _____

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9.1 Division Fact Strategies Page 2

b) 49 ÷ 7 = ▒

Use 49 counters to make 7 equal rows. Sketch the array below.

How many counters are in each row? _____

49 ÷ 7 = _____

c) 24 ÷ 4 = ▒

Use _____ counters to make 4 equal rows. Sketch the array below.

24 ÷ 4 = _____

d) 42 ÷ 6 = ▒

Use _____ counters to make _____ equal rows.

42 ÷ 6 = _____

e) 35 ÷ 7 = ▒

Use counters to show this equation.

35 ÷ 7 = _____

f) 56 ÷ 8 = ▒

Use counters to show this equation.

56 ÷ 8 = _____

L Name: _____ Date: _____

9.2 Dividing by Halving Page 1

Student Book pages 302–303

GOAL

Relate division facts by halving.

You will need

- counters

8 vans are taking 56 students to Pioneer Village Museum.
Each van holds an equal number of students.

How many students should go in each van?

Step 1: Divide 56 counters into 2 equal groups.

Hint: Draw 2 circles, and place an equal number of counters in each circle.

How many counters are in each group? _____

56 ÷ 2 = _____

Step 2: Divide the 2 groups in Step 1 into 2 equal groups.

There are 2 × 2 = 4 equal groups.

Divide _____ counters into 2 equal groups.

How many counters are in each group? _____

_____ ÷ 2 = _____

Step 3: Divide the 4 groups in Step 2 into 2 equal groups.

There are 4 × 2 = _____ equal groups.

Divide _____ counters into _____ equal groups.

How many counters are in each group? _____

_____ ÷ 2 = _____

There are _____ groups with _____ counters in each group.

So, _____ students should go in each van.

L Name: _____ Date: _____

9.2 Dividing by Halving Page 2

Reflecting

What is another way of calculating 56 ÷ 2 = 28?

What is another way of calculating 28 ÷ 2 = 14?

You know that 8 = 2 × 2 × 2. How does this help you to calculate 56 ÷ 8?

How can you use dividing by halving to calculate 36 ÷ 4?

C&P Name: _____ Date: _____

9.2 Dividing by Halving Page 1

Student Book pages 302–303

Checking

You will need

- counters

1. 4 vans are taking 24 students on a field trip.

Each van has the same number of students.

Divide by 2 to find how many students are in each van.

Dividing by 4 is the same as dividing by 2 _____ times.

Share 24 counters between 2 equal groups.

How many counters are in each group? _____

24 ÷ 2 = _____

Share each of those groups between 2 groups. You should have 4 equal groups.

How many counters are in each group? _____

24 ÷ 4 = _____

There will be _____ students in each van.

Practising

2. Calculate each quotient by dividing by 2 as many times as necessary.

a) 64 ÷ 8

8 = 2 × 2 × _____

Dividing by 8 is the same as dividing by 2 _____ times.

Share 64 counters between 2 equal groups.

How many counters are in each group? _____

64 ÷ 2 = _____

Share each of those groups between 2 groups. You should have 4 equal groups.

How many counters are in each group? _____

_____ ÷ 2 = _____

Share each of those groups between 2 groups. You should have 8 equal groups.

How many counters are in each group? _____

_____ ÷ 2 = _____

So, 64 ÷ 8 = _____.

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9.2 Dividing by Halving Page 2

b) 32 ÷ 4

8 = 2 × _____

Dividing by 4 is the same as dividing by 2 _____ times.

Share 32 counters between 2 equal groups.

32 ÷ 2 = _____

Share each of those groups between 2 groups. You should have 4 equal groups.

_____ ÷ 2 = _____

So, 32 ÷ 4 = _____.

c) 72 ÷ 8

8 = 2 × _____ × _____

Dividing by 8 is the same as dividing by 2 _____ times.

Share 72 counters between 2 equal groups.

72 ÷ 2 = _____

Share each of those groups between 2 groups. You should have 4 equal groups.

_____ ÷ 2 = _____

Share each of those groups between 2 groups. You should have 8 equal groups.

_____ ÷ 2 = _____

So, 72 ÷ 8 = _____.

d) 48 ÷ 8

8 = _____ × _____ × _____

Dividing by 8 is the same as dividing by 2 _____ times.

Share 48 counters between 2 equal groups.

48 ÷ 2 = _____

Share each of those groups between 2 groups. You should have 4 equal groups.

_____ ÷ 2 = _____

Share each of those groups between 2 groups. You should have 8 equal groups.

_____ ÷ 2 = _____

So, 48 ÷ 8 = _____.

Name: _____ Date: _____

Chapter 9 Lesson 2

Dividing by Halving

GOAL

Relate division facts by halving.

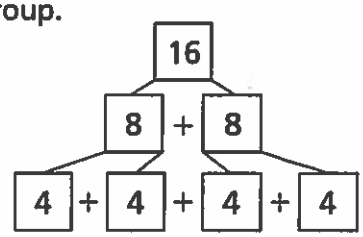
1. 20 people are sitting in 4 equal groups.
How many people are in each group?
Use dividing by 2 to calculate the number of people in each group.

At-Home Help

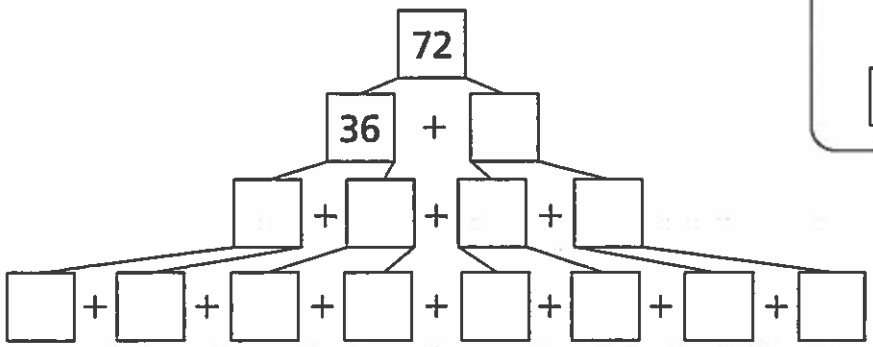
You can divide by halving.

For example:
16 people are sitting in 4 equal groups. How many people are in each group?

Solution: I can divide 16 by 2 to make 2 groups of 8.
I can divide these 2 groups by 2 to make 4 groups of 4.
There are 4 people in each group.



2. Jolie brought 72 cookies to class. She has 8 bags of cookies with the same number in each bag.
How many cookies are in each bag?



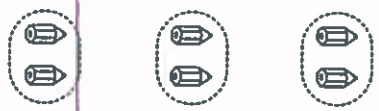
3. Calculate each quotient by dividing by 2 as many times as necessary.
Show your work.

a) 24 ÷ 4 = _____ **b)** 64 ÷ 8 = _____ **c)** 40 ÷ 4 = _____

Dividing by 2 Is Easy to Do

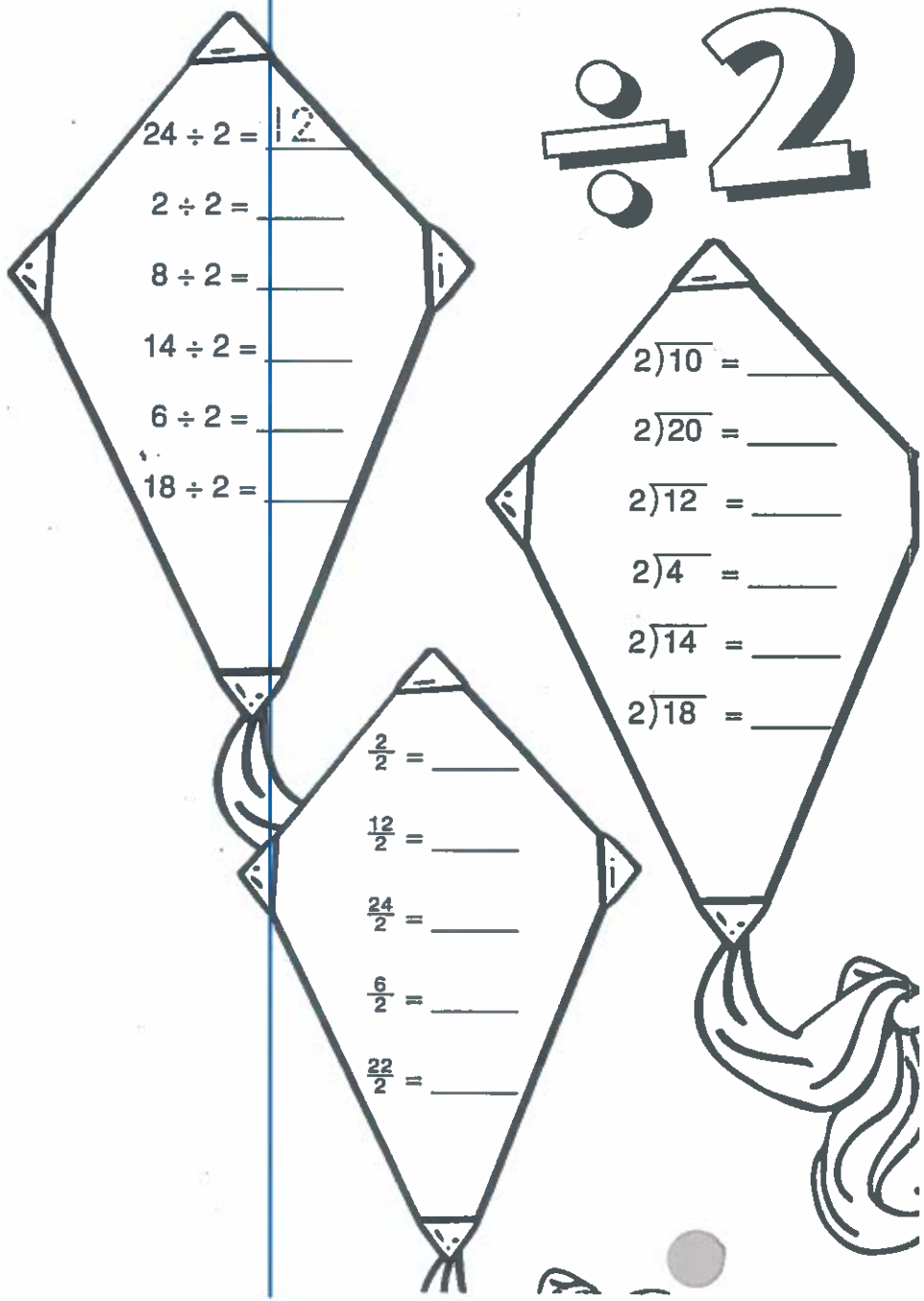
When dividing by 2, you are really just dividing a number in half. This is because you are putting the dividend into 2 groups.

Find the quotient for each problem. Use pictures if you need to.

1. 6 pencils ÷ 2 = 3 
2. 4 flowers ÷ 2 = _____ 
3. 10 phones ÷ 2 = _____ 
4. 16 forks ÷ 2 = _____
5. 2 stars ÷ 2 = _____
6. 12 fish ÷ 2 = _____
7. 14 oranges ÷ 2 = _____
8. 8 candies ÷ 2 = _____
9. 18 bowling pins ÷ 2 = _____
10. 20 spiders ÷ 2 = _____

Dividing by 2

Find the quotient. The divisor is 2 in all the problems.



Name _____

27 Find Prime Numbers

A **prime number** has only two different factors, itself and 1.
A **composite number** has more than two factors.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1. Cross out 1. It has only 1 factor. It is neither prime nor composite.
2. Circle 2. Then, cross out all the numbers divisible by 2.
3. Go to the next number that is not circled or crossed out and circle it. Then, cross out all the numbers divisible by that number.
4. Repeat step 3 until you find all the prime numbers less than 100.
5. How many prime numbers did you find? _____
6. What is the least prime number? _____ Greatest prime number? _____
7. List the prime numbers less than 30.

   _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
8. List the prime numbers between 30 and 100.

   _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

   _____ _____ _____ _____ _____

Name _____

29 Divisibility Rules

Divisibility Rules	
Number	**Divisible by**
even; ends in 0, 2, 4, 6, 8	2
ends in 0 or 5	5
ends in 0	10
sum of the digits is divisible by 3	3
divisible by 2 and 3	6

Note: 1 is a factor of every number. If a number is divisible by 2, then 2 is a factor of that number.

What are the factors of 36? It's even, so, it's divisible by 2. The sum of its digits is divisible by 3. Since it's divisible by 2 and 3, it's divisible by 6.

The factors of 36 are
1, 2, 3, 4, 6, 9, 12, 18, 36

1 and 36 2 and 18 3 and 12
4 and 9 6 and 6 are **factor pairs.**

Tell whether each number is divisible by 2, 3, 5, 6, or 10.

1. 20 2, 5, 10 _____ 27 _____
2. 42 _____ 56 _____
3. 38 _____ 70 _____
4. 64 _____ 90 _____

List the factors for each number in order. Think of factor pairs.

5. 21 _____ 30 _____
6. 56 _____ 42 _____
7. 64 _____ 80 _____
8. 96 _____ 100 _____

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9.3 Dividing Tens and Hundreds Page 1

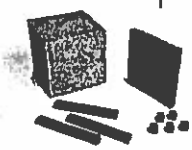
Student Book pages 304–306

GOAL

Divide tens and hundreds by one-digit numbers.

You will need

- base ten blocks



A casserole has 6 layers of filling.

The recipe card shows some of the ingredients.

How many grams of each ingredient are in each layer of filling?

Recipe

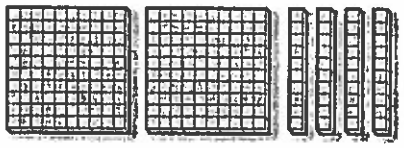
Six-Pailles Filling
240 g rabbit
360 g turkey
180 g pork
300 g venison

Step 1: There are 6 layers of filling.

Divide the number of grams of each ingredient by 6.

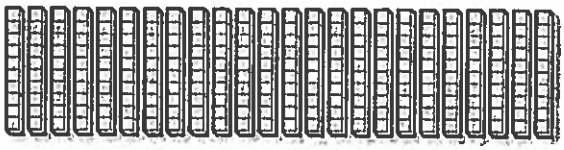
Step 2: Use base ten blocks to model 240 g of rabbit.

240 = 2 hundreds blocks + 4 tens blocks



Each hundreds block is 10 tens blocks.

240 = 10 tens blocks + 10 tens blocks + 4 tens blocks = 24 tens blocks

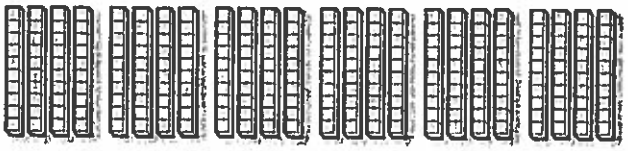


So, 240 is the same as 24 tens.

Step 3: Divide 24 tens into 6 equal groups.

24 ÷ 6 = 4

There are 6 groups of 4 tens in each group.



4 tens = 40

So, there are 40 g of rabbit in each layer.

L Name: _____ Date: _____

9.3 Dividing Tens and Hundreds Page 2

Step 4: Use base ten blocks to model 360 g of turkey.

Hint: 360 is 3 hundreds + 6 tens, or 3 tens + 3 tens + 3 tens + 6 tens, or 36 tens.

36 tens ÷ 6 = _____ tens

_____ tens = _____

There are _____ g of turkey in each layer.

Step 5: Use base ten blocks to model 180 g of pork.

180 = _____ tens

_____ tens ÷ 6 = _____ tens

_____ tens = _____

There are _____ g of pork in each layer.

Step 6: Use base ten blocks to model 300 g of venison.

300 = _____ tens

_____ tens ÷ 6 = _____ tens

_____ tens = _____

There are _____ g of venison in each layer.

Reflecting

The recipe also requires 660 g of cubed potatoes.

Why might you write 660 as 66 tens to divide by 6?

Hint: Use base ten blocks to model 660.

_____

_____

_____

How can you use 30 ÷ 6 to calculate 300 ÷ 6?

_____

_____

_____

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9.3 Dividing Tens and Hundreds Page 1

Student Book pages 304–306

Checking

You will need

- base ten blocks

1. The 350 students in Aaron's school were placed in groups of 5 for an activity. How many groups were there?

   350 ÷ 5 = ▒

   Use base ten blocks to model 350.

   350 = _____ tens

   _____ tens ÷ 5 = _____ tens

   _____ tens = _____

   There were _____ groups.

2. Calculate. Use base ten blocks to model each question.

   a) 240 ÷ 8 = ▒

   240 = _____ tens

   _____ tens ÷ 8 = _____ tens

   _____ tens = _____

   240 ÷ 8 = _____

   b) ▒ = 800 ÷ 4

   800 = _____ hundreds

   _____ hundreds ÷ 4 = _____ hundreds

   _____ hundreds = _____

   800 ÷ 4 = _____

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9.3 Dividing Tens and Hundreds Page 2

c) 560 ÷ 7 = ▒

560 = _____ tens

_____ tens ÷ 7 = _____ tens

_____ tens = _____

560 ÷ 7 = _____

d) ▒ = 810 ÷ 9

810 = _____ tens

_____ tens ÷ 9 = _____ tens

_____ tens = _____

810 ÷ 9 = _____

Practising

6. Draw a picture to show how calculating 280 ÷ 7 is related to calculating 28 ÷ 7.

Explain your picture.

Use base ten blocks to model 280.

How many tens are there? _____

Draw a picture to show 28 ÷ 7.

Hint: Use base ten blocks in your picture.

28 ÷ 7 = _____ tens

_____ tens = _____

Name: _____ Date: _____

Chapter 9

Lesson 3

Dividing Tens and Hundreds

GOAL

Divide tens and hundreds by one-digit numbers.

1. Rename, and then calculate. Show your work.

a) 400 ÷ 2 = _____

b) 600 ÷ 2 = _____

c) 120 ÷ 6 = _____

At-Home Help

You can rename numbers to help you divide.

Example 1: Calculate 800 ÷ 4 by renaming 800 as 8 hundreds.
8 hundreds ÷ 4 = 2 hundreds
So 800 ÷ 4 = 200.

Example 2: Calculate 120 ÷ 3 by renaming 120 as 12 tens.
12 tens ÷ 3 = 4 tens
So 120 ÷ 3 = 40.

2. Calculate.

a) 240 ÷ 4 = _____

b) 360 ÷ 9 = _____

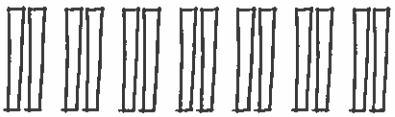
c) 150 ÷ 3 = _____

d) 480 ÷ 8 = _____

e) _____ = 900 ÷ 3

f) _____ = 270 ÷ 9

3. Tai sketched base ten blocks to calculate 140 ÷ 7. Explain how Tai can calculate the quotient.



_____

_____

4. Sketch base ten blocks to show how calculating 800 ÷ 4 is like calculating 8 ÷ 4. Explain your sketch.

9 Dividing Multiples of 10, 100 or 1000

EXAMPLE

3 children share 600 stickers. How many stickers does each child get?

$600 \div 3 = 6 \text{ hundreds} \div 3$
$= 2 \text{ hundreds}$
$= 200$

Each child gets 200 stickers.

$$\begin{array}{r} 200 \leftarrow \text{quotient} \\ 3 \overline{)\,600} \leftarrow \text{dividend} \\ \underline{600} \\ \end{array}$$

divisor →

HINT

- Dividing the multiples of 10, 100 or 1000 is similar to dividing other dividends, but don't forget to write the zero(s) in the quotient.

  e.g. $420 \div 7 =$

  $$7 \overline{)420} \rightarrow \begin{array}{r} 6 \\ 7 \overline{)420} \\ 42 \end{array} \rightarrow \begin{array}{r} 60 \\ 7 \overline{)420} \\ \underline{420} \end{array}$$

- Estimate the quotient by rounding the numbers to the nearest ten, hundred or thousand.

  e.g. $621 \div 2 = ?$

  estimate $600 \div 2 = 300$ the answer should be close to 300

  There are about 300 twos in 621.

Fill in the missing numbers.

① $800 \div 2 =$ _____ hundreds $\div 2$

= _____ hundreds

= _____

② $550 \div 5 =$ _____ tens $\div 5$

= _____ tens

= _____

③ $360 \div 9 =$ _____ tens $\div 9$

= _____ tens

= _____

④ $480 \div 8 =$ _____ tens $\div 8$

= _____ tens

= _____

⑤ $600 \div 6 =$ _____ hundreds $\div 6$

= _____ hundred

= _____

⑥ $240 \div 4 =$ _____ tens $\div 4$

= _____ tens

= _____

L Name: _____ Date: _____

9.4 Estimating Quotients Page 1

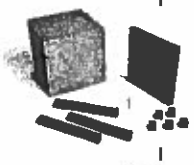
Student Book pages 308–310

GOAL

Use personal strategies to estimate quotients.

You will need

- base ten blocks



- counters

Some groups of animals have special names.

Some examples include:

- a pod of dolphins
- a mob of kangaroos
- a rookery of penguins

A mob of 114 kangaroos split into equal groups and hopped off in 4 different directions.

About how many kangaroos hopped off in each direction?

René's Strategy: Use base ten blocks to model the problem.

114 is about 120, and 120 = 12 tens.

Divide 12 tens into 4 equal groups.

12 tens ÷ 4 = _____ tens

_____ tens = _____

René's estimate is about _____ kangaroos.

(Circle) the correct answer. 120 is bigger than 114. 120 is smaller than 114.

(Circle) the correct answer, and then explain your reasoning.

René's estimate is high because René's estimate is low because

_____

L Name: _____ Date: _____

9.4 Estimating Quotients Page 2

Tai's Strategy: Use counters to model the problem.

114 is close to 100. Divide 100 counters into 4 equal groups.

How many counters are in each group? _____

100 ÷ 4 = _____

Tai's estimate is about _____ kangaroos.

(Circle) the correct answer. 100 is bigger than 114. 100 is smaller than 114.

(Circle) the correct answer, and then explain your reasoning.

Tai's estimate is high because Tai's estimate is low because

_____

Complete the number line.

Identify 114 on the number line below.

114 is closest to _____ because _____

_____

(Circle) the correct answer.

Whose estimate is closest to the actual value? René's Tai's

About how many kangaroos hopped off in each direction? _____

Reflecting

René used 120 kangaroos to estimate. Tai used 100 kangaroos to estimate.

Why were both of these numbers good choices?

_____

_____

How are René's and Tai's estimation strategies the same? How are they different?

_____

_____

_____

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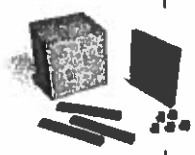
9.4 Estimating Quotients Page 1

Student Book pages 308–310

Checking

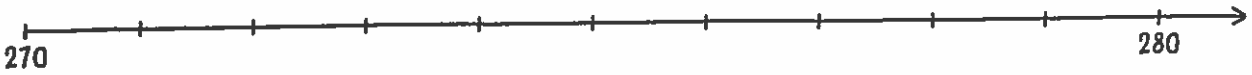
You will need

- base ten blocks



1. A rookery of 278 penguins was formed when 4 smaller rookeries came together.
The 4 groups were almost equal.

a) Place 278 on the number line below.



278 is about _____.

Why is this a good number to estimate 278 ÷ 4?

_____

_____

b) Use base ten blocks to model the number from part a).

_____ is _____ tens.

_____ tens ÷ 4 = _____ tens

_____ tens = _____

There are about _____ penguins in each smaller rookery.

C&P Name: _____ Date: _____

9.4 Estimating Quotients Page 2

Practising

2. A large pod of 132 dolphins was formed when 9 smaller pods came together.
The smaller pods were almost equal.

Place 132 on a number line.

132 is about _____.

Use base ten blocks to model the number.

_____ is _____ tens.

Divide the tens blocks into 9 equal groups. Draw your groups in the space below.

About how many dolphins were in each smaller pod? _____

Explain how you determined your estimate.

_____

_____

_____

Estimating Quotients

Name _____

Estimate $3\overline{)73}$.

When you estimate you do not need an exact answer.

Use a smaller fact close to $3\overline{)7}$. → Divide.

$3\overline{)73}$ — $3\overline{)6}$ is a smaller fact close to $3\overline{)7}$.

Write 2 in the tens place. $3\overline{)\overset{2}{73}}$

$3\overline{)\overset{20}{73}}$ — Write zero to complete the estimate.

The estimate is 20.

Estimate.

1. $4\overline{)68}$ $\overset{10}{}$

$4\overline{)4}$ is close to $4\overline{)6}$.

Write 1 in the tens place.

Write 0 to complete the estimate.

2. $2\overline{)57}$

_____ is close to $2\overline{)5}$.

Write _____ in the tens place.

Write _____ to complete the estimate.

3. $3\overline{)43}$

_____ is close to $3\overline{)4}$.

Write _____ in the tens place.

Write _____ to complete the estimate.

Circle the closer fact to estimate. Write the estimated quotient.

4.	$2\overline{)63}$	a. $2\overline{)4}$	b. $2\overline{)6}$	5.	$4\overline{)95}$	a. $4\overline{)4}$	b. $4\overline{)8}$
6.	$3\overline{)41}$	a. $3\overline{)3}$	b. $3\overline{)6}$	7.	$5\overline{)67}$	a. $5\overline{)5}$	b. $5\overline{)10}$

Do the division. Then write the letters representing the answers to find what Ted says.

⑦ $9\overline{)450}$ b	⑧ $4\overline{)1200}$ m	⑨ $5\overline{)50}$ s
⑩ $8\overline{)5600}$ i	⑪ $9\overline{)270}$ c	⑫ $2\overline{)120}$ d
⑬ $8\overline{)1600}$ p	⑭ $9\overline{)630}$ f	⑮ $2\overline{)40}$ e
⑯ $6\overline{)3600}$ h	⑰ $7\overline{)140}$ a	⑱ $2\overline{)6000}$ n

⑲ $2100 \div 7 =$ _____ q	⑳ $400 \div 5 =$ _____ w
㉑ $90 \div 3 =$ _____ t	㉒ $80 \div 4 =$ _____ j
㉓ $5600 \div 7 =$ _____ g	㉔ $180 \div 6 =$ _____ l
㉕ $240 \div 6 =$ _____ y	㉖ $5400 \div 6 =$ _____ i
㉗ $400 \div 8 =$ _____ z	㉘ $60 \div 3 =$ _____ k
㉙ $300 \div 3 =$ _____ u	㉚ $200 \div 4 =$ _____ r

㉛

I like ___ ___ ___ ___ ___ ___ ___.
70 900 10 600 700 3000 800

Name: _____ Date: _____

Chapter 9
Lesson 4

Estimating Quotients

GOAL

Use personal strategies to estimate quotients.

1. At Lakeport Zoo, 119 animals are in 4 groups that are mostly equal. About how many animals are in each group?

At-Home Help

You can estimate a quotient by choosing a nearby number that is easier to divide.

For example: Estimate 144 ÷ 3.
144 is close to 150.
150 ÷ 3 is the same as
15 tens ÷ 3 = 5 tens, or 50.
The answer is close to 50.

2. Estimate each quotient by filling in the blanks.

a) 163 ÷ 2

163 is close to 16 tens.

16 tens ÷ 2 = 8 tens

So 163 ÷ 2 is about _____.

b) 237 ÷ 8

237 is close to _____ tens.

_____ tens ÷ 8 = _____ tens

So 237 ÷ 8 is about _____.

c) 418 ÷ 6

418 is close to _____ tens.

_____ tens ÷ 6 = _____ tens

So 418 ÷ 6 is about _____.

d) 631 ÷ 9

631 is close to _____ tens.

_____ tens ÷ 9 = _____ tens

So 631 ÷ 9 is about _____.

3. Estimate each quotient.

a) 98 ÷ 5 _____

b) 324 ÷ 8 _____

4. Owen bought 6 art posters for $311. About how much did each poster cost?

CHAPTER 6 7

Name: _____ Date: _____

Estimating Quotients

Goal **Overestimate and underestimate when dividing.**

1. Overestimate each division. Show the numbers you used to estimate.

Overestimate

a) 1427 ÷ 5 _____

b) $8\overline{)2394}$ _____

c) $3\overline{)1713}$ _____

d) 5406 ÷ 7 _____

2. Underestimate each division. Show the numbers you used to estimate.

Underestimate

a) 1135 ÷ 2 _____

b) 1303 ÷ 4 _____

c) 2645 ÷ 3 _____

d) 4495 ÷ 6 _____

3. For each question, is it more accurate to overestimate or underestimate? Explain.

a) 2914 ÷ 5 _____

_____

b) 3759 ÷ 6 _____

4. Estimate to solve each problem. Explain your thinking.

a) The total attendance at 2 hockey games in March was 9498 people. Approximately what was the average attendance at each game?

_____

b) Four CDs cost $52.39. Three DVDs cost $48.45. Which item costs more?

_____

_____

At-Home Help

A **quotient** is the answer to a division question.

For example, 8 is the quotient of 48 ÷ 6.

48 ÷ 6 = 8

To do some calculations, it is easier to overestimate and underestimate. The actual answer will be somewhere between both estimates.

With other calculations, either an overestimate or an underestimate gives a fairly accurate answer.

For example, 4753 ÷ 6 would be 4800 ÷ 6 = 800 as an overestimate. 800 is fairly accurate because 4753 is closer to 4800 than 4200.

1095 ÷ 2 would be 1000 ÷ 2 = 500 as an underestimate. 500 is fairly accurate because 1095 is closer to 1000 than 1200.

4539 ÷ 6 would be 4200 ÷ 6 = 700 as an underestimate and 4800 ÷ 6 = 800 as an overestimate. The actual answer is about 750, or halfway between 700 and 800.

E-A Name: _____ Date: _____

9.5 Exploring Division with Greater Numbers

Student Book page 311

Matthew has 456 g of ground beef to make hamburgers.
He has 820 mL of juice.
He wants to divide the ground beef and juice into equal amounts for his friends.

You will need

- base ten blocks

- counters

How many grams of ground beef could Matthew use for each hamburger, and how many millilitres of juice could he use for each drink?

How many hamburgers do you want to make? _____

Use a strategy to divide 456 g into _____ equal groups.

Explain what you did.

_____

_____

_____

_____

How many grams are in each hamburger? _____ g

How many drinks do you want to make? _____

Use a strategy to divide 820 mL into _____ equal groups.

Explain what you did.

_____

_____

_____

_____

How many millilitres are in each drink? _____ mL

E-B Name: _____ Date: _____

9.5 Exploring Division with Greater Numbers

Student Book page 311

GOAL

Use personal strategies to solve division problems.

You will need

- base ten blocks
- counters

Matthew has 90 g of ground beef to make hamburgers.

He has 75 mL of juice.

He wants to divide the ground beef and juice into equal amounts for his friends.

Matthew has to be ready for different amounts of guests.

How many grams of ground beef could Matthew use for each hamburger, and how many millilitres of juice could he use for each drink?

Imagine 3 of Matthew's friends want hamburgers.

Use base ten blocks to model 90 g.

90 = _____ tens

Divide the group of tens into 3 equal groups.

_____ tens ÷ 3 = _____ tens

Count the tens in each group.

Each group has _____ tens, which is _____.

Each hamburger has _____ g of beef.

Imagine 5 of Matthew's friends want drinks.

Use counters to divide 75 into 5 equal groups.

How many counters are in each group? _____

75 = _____ + _____ + _____ +_____ + _____

Each drink has _____ mL of juice.

What other strategies can you use to make equal groups of hamburgers and juice? Give an example.

_____

_____

_____

Name: _____ Date: _____

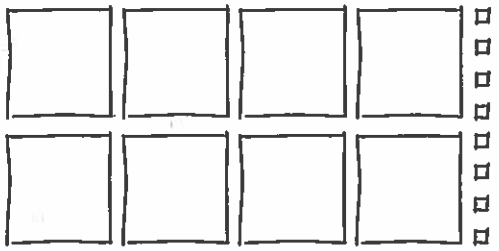
Chapter 9 Lesson 5

Exploring Division with Greater Numbers

GOAL

Use personal strategies to solve division problems.

1. Jolie has 808 g of modelling clay. She wants to make 4 creatures that have the same mass. To calculate each mass, Jolie uses base ten blocks to model 808 g.



Divide Jolie's base ten blocks into 4 equal groups to represent 4 creatures.
Sketch your groups.
What is the mass of each creature?

At-Home Help

Here are some strategies for solving division problems:

- Sketch an array.
- Divide by halving.
- Rename as tens or hundreds.
- Estimate by choosing a nearby number that is easier to divide.

2. Tai divided 204 g of modelling clay into 4 equal parts. What is the mass of each part? (Hint: Sketch 20 tens and 4 ones blocks.)

3. Use any strategy to solve each division problem.

a) 366 g of modelling clay, divided into 6 equal parts: 366 ÷ 6 = _____

b) 464 g of modelling clay, divided into 8 equal parts: 464 ÷ 8 = _____

CHAPTER 6 8

Name: _____ Date: _____

Dividing Greater Numbers

Goal **Divide a four-digit number by a one-digit number.**

1. Estimate and then divide. Show your work.

	Estimate	Answer
a) 2641 ÷ 2		
b) $3\overline{)2001}$		
c) $6\overline{)3517}$		
d) 2134 ÷ 9		
e) $6\overline{)1604}$		
f) 4395 ÷ 5		

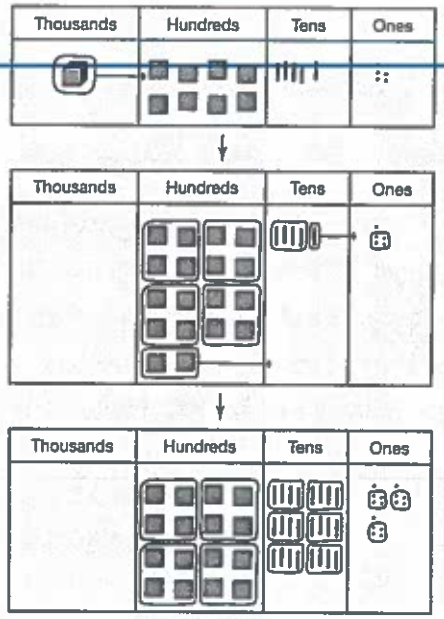
2. Check two of the answers in Question 1 using multiplication and addition.

3. Eight dolphins in a pod each have about the same mass. Their total mass is about 1195 kg. What is the approximate mass of each dolphin?

At-Home Help

To divide some numbers, you may need to regroup first.

For example, to divide 1855 ÷ 4, use base ten blocks.



1855 ÷ 4 = 463 R3

4. Four trucks are ready to transport the 8 dolphins to a marine centre. Each truck can carry 225 kg. Can the trucks carry all the dolphins in one trip? Explain.

L Name: _____ Date: _____

9.6 Using Subtraction to Divide Page 1

Student Book pages 314–316

GOAL

Divide by subtracting repeatedly.

You will need

- number lines
- counters

139 sled dogs are available for a sled dog race.

The dogs will be divided into groups of 6.

How many teams of 6 can be made with 139 sled dogs?

Step 1: Subtract 6s from 139 to see how many teams there will be.

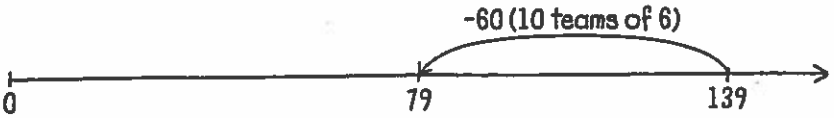
Start with 10 teams of 6 dogs per team.

$6 \times 10 = 60$

There are 60 dogs for 10 teams.

Subtract 60 dogs from the total number of dogs.

$139 - 60 = 79$



$$\begin{array}{r|l} 6\overline{)139} & \\ -\,60 & 10 \text{ teams} \\ \hline 79 & \end{array}$$

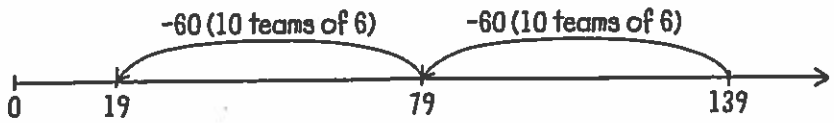
Step 2: There are 79 dogs left.

Subtract another 10 teams of 6 dogs per team.

$6 \times 10 = 60$

Subtract 60 dogs from the total number of dogs.

$79 - 60 = 19$



$$\begin{array}{r|l} 6\overline{)139} & \\ -\,60 & 10 \text{ teams} \\ \hline 79 & \\ -\,60 & 10 \text{ teams} \\ \hline 19 & \end{array}$$

L Name: _____ Date: _____

9.6 Using Subtraction to Divide Page 2

Step 3: There are 19 dogs left.

Subtract to find out how many teams of 6 dogs can be made.

Use counters if necessary.

How many times did you subtract 6? _____

How many teams of 6 can you make? _____

_____ × 6 = _____

19
− 6
□
− 6
□
− 6
□

Step 4: Complete the subtraction equation.

How many teams of 6 can be made with 139 dogs?

_____ teams

6)139

− 60 | 10 teams

79

− 60 | 10 teams

19

− □ | ___ teams

□ | □ teams altogether

Reflecting

Cara started by subtracting the number of dogs in 10 teams.

Why was this a good choice?

Hint: Think about what number is easiest to multiply by.

_____

_____

She could have used 20 teams instead.

20 = _____ tens

_____ tens × 6 = _____ tens, which is _____.

Why would using 20 teams also be a good choice?

_____

_____

What does the remainder represent?

Remember: The dogs had to be in teams of 6.

_____

C&P Name: _____ Date: _____

9.6 Using Subtraction to Divide Page 1

Student Book pages 314–316

Checking

You will need

- number lines
- base ten blocks

1. How many teams of 8 dogs can be made with 342 dogs?

Start with 10 teams, which is 80 dogs.

$8\overline{)342}$

$-\ 80$ | 10 teams

$\square$

Use base ten blocks to subtract.

Complete the number line to show your thinking.

Subtract another team of 10. Use base ten blocks.

$8\overline{)342}$

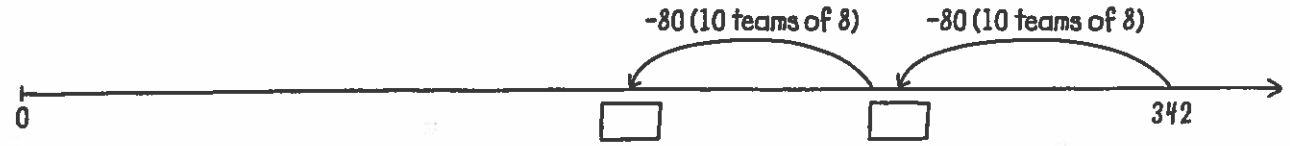
$-\ 80$ | 10 teams

$\square$

$-\ 80$ | 10 teams

$\square$

Complete the number line to show your thinking.



C&P Name: _____ Date: _____

9.6 Using Subtraction to Divide Page 2

Keep subtracting 10 teams of 8. Show your work.

How many dogs are left over?_____

Use the counters to make groups of 8.

How many groups are there? _____

How many dogs are left over? _____

How many teams of 8 are there altogether? Show your work below.

_____

_____

_____

How many extra dogs are there? _____

$$\begin{array}{r|l} 8\overline{)342} & \\ -\ 80 & 10 \text{ teams} \\ \hline \square & \\ -\ 80 & 10 \text{ teams} \\ \hline \square & \\ -\ 80 & 10 \text{ teams} \\ \hline \square & \\ -\ 80 & 10 \text{ teams} \\ \hline \square & \end{array}$$

Practising

7. Chloe's mother worked 197 days this year.

a) If she worked 6 days a week, how many days did she work?

$10 \times 6 =$ _____

Use repeated subtraction to find the answer. Show your work.

She worked _____ weeks.

Explain how you got your answer.

_____

_____

$$\begin{array}{r|l} 6\overline{)197} & \\ -\ \square & 10 \text{ weeks} \\ \hline \end{array}$$

b) How many weeks did she work if she worked 5 days a week?

Show your work.

She worked _____ weeks.

Explain how you got your answer.

_____

_____

$$\begin{array}{r|l} 5\overline{)197} & \\ -\ \square & \\ \hline \end{array}$$

Name: _____ Date: _____

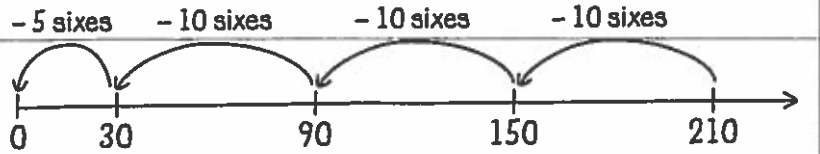
Chapter 9 Lesson 6

Using Subtraction to Divide

GOAL

Divide by subtracting repeatedly.

1. Sydney calculated 210 ÷ 6 using a number line. She started at 210 and subtracted sixes.



Use Sydney's number line to calculate the quotient. Show your work.

At-Home Help

You can divide by subtracting. For example:
Calculate 154 ÷ 7.
I will subtract sevens from 154.
I will start by subtracting 10 sevens, or 70. 154 – 70 = 84
I will subtract 10 more sevens. 84 – 70 = 14

I know there are 2 sevens in 14. I will add all the sevens together. 10 + 10 + 2 = 22, so 157 ÷ 7 = 22.

2. Calculate 115 ÷ 5 by subtracting equal groups. Use the number line. 115 ÷ 5 = _____

3. 175 students were placed in equal groups for a game.

a) If the students were put in groups of 5, how many groups were there?

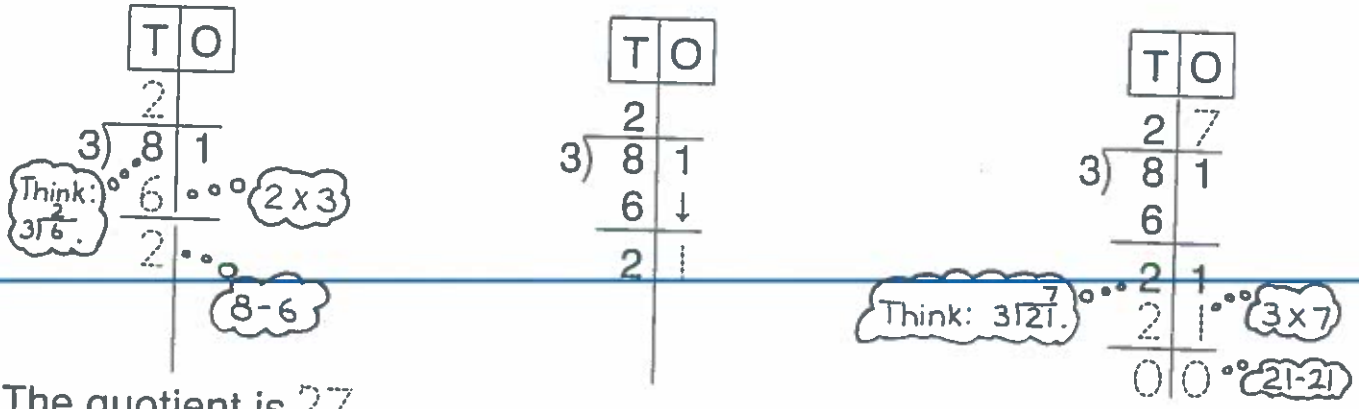
b) If the students were put in groups of 7, how many groups were there?

Dividing with Trading

Name _____

Follow the steps to find the quotient of 81 ÷ 3.

Divide the tens. ⇒ Bring down the ones. ⇒ Divide again.



The quotient is 27.

Complete to find the quotient.

1. T O
   1
   6) 8 4
   6 ↓
   2 4

2. T O
   1
   4) 6 4
   4
   2

3. T O
   1
   5) 7 5
   5

4. T O
   3
   2) 7 8

Complete.

5. T O
   4) 7 6

6. T O
   5) 8 5

7. T O
   2) 9 4

8. T O
   7) 7 7

L Name: _____ Date: _____

9.7 Dividing by Sharing Page 1

Student Book pages 318–321

GOAL

Divide three-digit numbers by one-digit numbers using models and symbols.

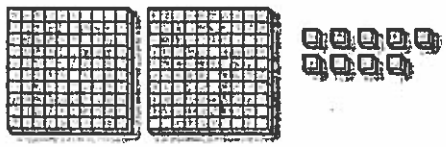
You will need

- base ten blocks

A family of 3 has 209 cell-phone minutes to share equally.

How many minutes will each family member get?

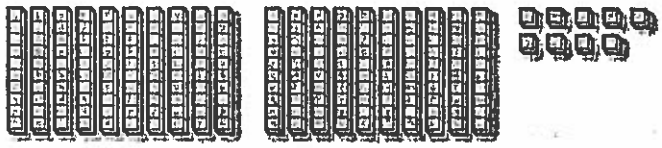
Step 1: Model 209 with base ten blocks.



$3\overline{)209}$

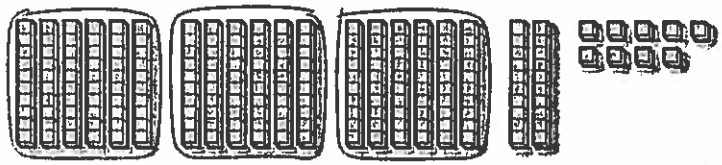
Step 2: Divide the blocks into 3 equal groups.

Trade the 2 hundreds blocks for 20 tens.



$3\overline{)209}$

Step 3: Share the 20 tens into 3 equal groups.



$$\begin{array}{r} 6 \\ 3\overline{)209} \\ -180 \\ \hline 29 \end{array}$$

How many tens are in each group? _____

_____ tens = _____

L Name: _____ Date: _____

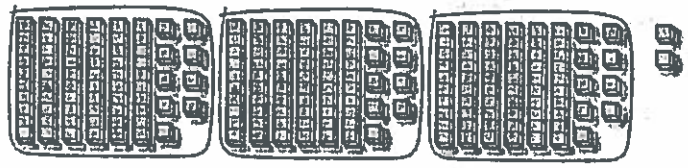
9.7 Dividing by Sharing Page 2

Step 4: How many tens are left over? _____

Trade these tens for ones.

How many ones are there in total? _____

Share the ones into 3 equal groups.



$$\begin{array}{r} 69 \\ 3\overline{)209} \\ -180 \\ \hline 29 \\ -27 \\ \hline 2 \end{array}$$

How many ones are in each group? _____

How many ones are left over? _____

Step 5: How many tens and ones are in each group? _____ tens _____ ones

Each family member will get _____ minutes with _____ minutes left over.

Reflecting

In Step 3, the 6 tens given to each person was recorded above the 0 and not above the 2. Why?

Hint: Think about what was being shared into equal groups.

_____

_____

In Step 3, 180 was subtracted from 209. Why?

Hint: Look at your answer in Step 3.

_____

_____

How would you have begun if there had been 309 minutes?

Hint: 309 has 3 hundreds blocks in it.

_____

_____

C&P Name: _____ Date: _____

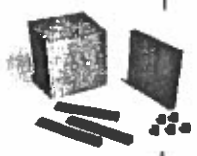
9.7 Dividing by Sharing Page 1

Student Book pages 318–321

Checking

You will need

- base ten blocks



1. A family of 4 has 282 cell-phone minutes to share equally.

a) Use base ten blocks to model 282.

Draw the blocks in the place value chart below.

Hundreds	Tens	Ones

Divide the blocks into 4 equal groups.

Are there enough hundreds blocks to share equally? _____

Trade 2 hundreds blocks for 20 tens.

How many tens blocks are there altogether? _____

Share the tens blocks in 4 equal groups.

Are there any tens left over? _____

Share the ones in 4 equal groups.

Are there any ones left over? _____

How many tens and ones are in each group? _____ tens _____ ones

Each family member gets _____ minutes.

b) Are there any minutes left over? _____

Explain your thinking.

Hint: Think about sharing the ones.

_____

_____

C&P Name: _____ Date: _____

9.7 Dividing by Sharing Page 2

Practising

7. Madeline baked 318 cookies for 8 friends. Jill baked 152 cookies for 3 friends.

a) Estimate whose friends would have more cookies.

318 is about 320. 320 is _____ tens.

_____ tens ÷ 8 = _____ tens, which is _____.

Madeline's friends will get about _____ cookies.

152 is about 150. 150 is _____ tens.

_____ tens ÷ 3 = _____ tens, which is _____.

Jill's friends will get about _____ cookies.

b) Calculate how many cookies Madeline's friends and Jill's friends will get.

Madeline: Divide 318 into 8 equal groups.

Trade the 3 hundreds for _____ tens.

Share the tens into 8 equal groups.

How many tens are in each group? _____ How many tens are left over? _____

Trade the leftover tens for ones. How many ones are there altogether? _____

Share the ones into 8 equal groups. How many ones are left over? _____

Madeline's friends will get _____ cookies each with _____ cookies left over.

Jill: Divide 152 into 3 equal groups.

Trade the 1 hundred for _____ tens.

Share the tens into 3 equal groups.

How many tens are in each group? _____ How many tens are left over? _____

Trade the leftover tens for ones. How many ones are there altogether? _____

Share the ones into 3 equal groups. How many ones are left over? _____

Jill's friends will get _____ cookies each with _____ cookies left over.

There will be _____ cookies left over.

Name: _____ Date: _____

Scaffolding for Lesson 7, Question 6

STUDENT BOOK PAGE 320

6. Calculate. Use the grids to keep track of the place values.

a)

	H	T	O			
	2					
4)	9	3	2			
	−8	0	0			

b)

3)	4	7	3			

c)

5)	6	0	6			

d)

7)	4	9	3			

Name: _____ Date: _____

Chapter 9 Lesson 7

Dividing by Sharing

GOAL

Divide three-digit numbers by one-digit numbers using models and symbols.

1. Matthew made a plan to calculate 176 ÷ 8.

Step 1: I need to share 176 base ten blocks into 8 groups.

I will model 176 as 17 tens and 6 ones.

Step 2: I can't share 17 tens or 6 ones into 8 groups.

So I will regroup 176 as 16 tens and 16 ones.

Step 3: I will share 16 tens and 16 ones into 8 groups.

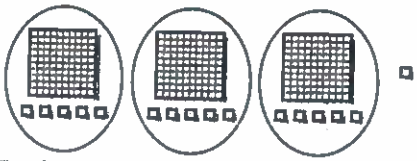
Use Matthew's plan to calculate. Sketch your groupings of base ten blocks.

At-Home Help

You can divide by sharing. For example: Calculate 316 ÷ 3.

I will model 316 using base ten blocks.

I can share the 3 hundreds among 3 groups. I will rename the 10 and 6 ones as 16 ones. Now I can share the 16 ones among 3 groups, too.



Each group has 1 hundred and 5 ones, and there is 1 left over. So 316 ÷ 3 = 105, with 1 left over.

2. Calculate.

a) $8\overline{)328}$ **b)** $9\overline{)198}$ **c)** $5\overline{)507}$

3. Desmond sorted his 187 baseball cards into groups of 6. How many groups did Desmond make? Show your work.

C&P Name: _____ Date: _____

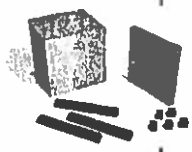
9.8 Describing Remainders as Decimals Page 1

Student Book pages 322–323

Checking

You will need

- play money
- base ten blocks



1. 5 friends earned $148 to share equally.

a) Estimate how much money each friend will get.

$148 is about $150.

Model 150 with base ten blocks.

150 = _____ tens

_____ tens ÷ 5 = _____ tens, which is _____.

Each friend will get about $ _____.

b) Calculate exactly how much money each friend will get in dollars and cents.

Share $148 equally into 5 groups.

How many dollars are in each group? _____

How many dollars are left over? _____

Change the dollars left over to dimes.

Hint: $1.00 is equal to 10 dimes.

How many dimes are there? _____

Share the dimes equally into 5 groups.

How many dimes are in each group? _____dimes, which is _____¢

How many dimes are left over? _____

Each friend will receive $_____ and _____¢.

Write this amount as a decimal. $_____

C&P Name: _____ Date: _____

9.8 Describing Remainders as Decimals Page 2

Practising

3. Mitchell bought 10 flower pots for $71.

a) He said that each pot cost $7 R1.

Why should he write the remainder as a decimal?

_____

_____

b) What is the cost of each pot?

Divide $71 equally into 10 groups.

How many dollars are in each group? _____

How many dollars are left over? _____

Share the leftover dollars equally into 10 groups using coins.

How many coins are in each group? _____ ¢

How much is left over? _____ ¢

Each pot costs $ _____ and _____ ¢.

Write the cost as a decimal. $ _____

L Name: _____ Date: _____

9.8 Describing Remainders as Decimals Page 1

Student Book pages 322–323

GOAL

Solve division problems with decimal remainders.

You will need

- play money
- base ten blocks

Matthew and 3 of his friends earned $218 by doing chores. They want to share this amount equally.

How much money will each friend get?

Step 1: Divide $218 into 4 equal groups.

Think of $218 as $200 + $18.

Divide $200 into 4 equal groups.

200 ÷ 4 = 50

Each group will receive $50.

Step 2: Divide $18 into 4 equal groups.

Think of $18 as $16 + $2.

Divide $16 into 4 equal groups.

16 ÷ 4 = _____

Each group will receive $ _____.

Step 3: There are $2 left over.

Share $2 using coins.

How many quarters are in $1? _____

How many quarters are in $2? _____

Hint: Double the number of quarters in $1.

Divide _____ quarters in $2 into 4 equal groups.

Each group will receive _____¢.

L Name: _____ Date: _____

9.8 Describing Remainders as Decimals Page 2

Step 4: Add the amounts from Steps 1 to 3 for each group.

Each group will receive $50 + $_____ + _____¢.

How many dollars will each friend receive? $_____

How many cents will each friend receive? _____¢

Using the chart below, show how many dollars and coins are in each group.

Step 5: Write each friend's share as a decimal. _____._____

Hint: Each $1 as a decimal is 1.0. Each 25¢ as a decimal is 0.25.

Each friend will receive $_____.

Reflecting

Why does it make sense to share $2 as coins?

_____

_____

Why does it make sense to use coins when writing the remainder as a decimal?

_____

_____

Name: _____ Date: _____

Chapter 9 Lesson 8

Describing Remainders as Decimals

GOAL

Solve division problems with decimal remainders.

You can use quarters and dimes to help you.

1. Express each remainder as a decimal.
Use quarters.

a) $183 ÷ 6 = $30 R3

b) $146 ÷ 8 = $18 R2

At-Home Help

You can use coins to express a remainder as a decimal. For example, $172 ÷ 8 = $21 R4. Express the remainder as a decimal.

Solution: $4 is the same as 16 quarters. I will share 16 quarters into 8 groups. There are 2 quarters, or $0.50, in each group.
So $172 ÷ 8 = $21.50.

2. Ami is dividing $82 among her 10 friends. She calculates that each friend will get $8, with $2 left over. Finish Ami's calculation.
How much money does each friend get? Use dimes.

3. Five people bought lunch together for $27.
Everyone ordered the same thing.
How much should each person pay?

Dividing Money

Divide money the same as you would whole numbers. Write the dollar sign and the decimal point in the quotient.

Example:

Divide 768 by 3	Divide $7.68 by 3
256	$2.56
3)768	3)$7.68
−6	−6
16	16
−15	−15
18	18
−18	−18
0	0

1. 5)$6.15

2. 2)$7.76

3. 7)$8.05

4. 4)$7.44

Dividing Money

Sometimes the divisor leaves you with cents instead of dollars, so you must put a 0 in the quotient before the decimal point.

Example:

$0.41
7)$2.87
−0
28
−28
07
−7
0

Match each problem with its answer.

1. 5)$4.20

2. 6)$6.72

3. 3)$2.10

4. 4)$0.92

a. $0.70

b. $0.23

c. $0.84

d. $1.12

L Name: _____ Date: _____

9.9 Interpreting Remainders Page 1

Student Book pages 324–326

GOAL

Decide how to deal with the remainder in a division problem.

You will need

- pencil
- crayons

3 students wrote problems they could solve by calculating 111 ÷ 6.

$$\begin{array}{r} 18 \\ 6\overline{)111} \\ -60 \\ \hline 51 \\ -48 \\ \hline 3 \end{array}$$

How does the problem help you decide what to do with the remainder?

Matthew's Problem
111 students went for a ride on the Super Coaster. Each car holds 6 people. How many cars did they need?

Solution: 111 ÷ 6 = 18 R3
Answer: 19 cars

Lauren's Problem
A pizza restaurant served only 6-slice pizzas. At a party, 111 slices were eaten. How many pizzas were eaten?

Solution: 111 ÷ 6 = 18 R3
Answer: 18 and $\frac{1}{2}$ pizzas

Desmond's Problem
Sara had 111 stickers to give to 6 friends. She wanted to give all of her friends the same number of stickers. How many stickers did each friend get?

Solution: 111 ÷ 6 = 18 R3
Answer: 18 stickers each

A. Why do you think Matthew gave 19 as his answer?

Hint: No one can be left behind.

_____

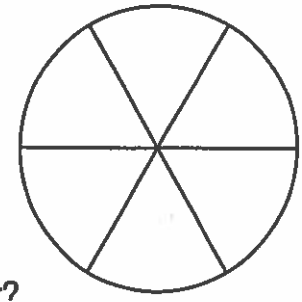
_____

B. Lauren's remainder is 3. She wrote this as $\frac{1}{2}$.

1 pizza = 6 slices

Colour in 3 slices of pizza.

(Circle) the amount of pizza you coloured in. $\frac{1}{2}$ $\frac{1}{4}$



Why did Lauren represent the remainder as a fraction in her answer?

_____

_____

L Name: _____ Date: _____

9.9 Interpreting Remainders Page 2

C. Desmond calculated 18 R3 but left the remainder out of his answer. Why?

Hint: Stickers cannot be broken into pieces.

_____

_____

D. How did knowing what the problem is about help you decide what to do with the remainder?

Hint: Think about whether everything can or cannot be shared equally.

_____

_____

Reflecting

Write a problem in which you would deal with an answer in each of the following ways.

Round up the answer to the next whole number:

_____

_____

_____

Write the remainder as a fraction or decimal:

_____

_____

_____

Ignore the remainder:

_____

_____

_____

C&P Name: _____ Date: _____

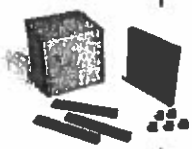
9.9 Interpreting Remainders Page 1

Student Book pages 324–326

Checking

You will need

- play money
- base ten blocks



1. Chantal has 158 photos to arrange in an album.
She wants to put 4 photos on each page.

a) Divide 158 into 4 equal groups.

Can you share 1 hundred into 4 groups? _____

Trade the 1 hundred for _____ tens.

Share the tens into 4 equal groups. Draw the groups in the space below.

How many tens are left over? _____

Trade the leftover tens for ones. How many ones are there altogether? _____

Share the ones into 4 equal groups. Draw the groups in the space below.

How many ones are left over? _____

Each group has _____ tens and _____ ones.

Chantal will need _____ pages.

_____ photos are left over.

b) Can any photos be left out of the album? _____

What can you do with the remainder?

_____

_____

How many pages will Chantal need? _____

C&P Name: _____ Date: _____

9.9 Interpreting Remainders Page 2

Practising

5. Use base ten blocks, play money, or a personal strategy to divide and solve each problem. Show your work and explain what you did with the remainder.

a) Nadine uses 4 pieces of wood to make a picture frame. She has 518 pieces of wood. How many frames can she make?

518 ÷ 4 = _____

b) Cupcakes come in packages of 6. Jesse needs 157 cupcakes. How many packages should he buy?

157 ÷ 6 = _____

c) Lisa and her 3 friends earned $225. They will share the money equally. How much money will each of them get?

225 ÷ 3 = _____

Name: _____ Date: _____

Chapter 9

Lesson 9

Interpreting Remainders

GOAL

Decide how to deal with the remainder in a division problem.

1. It takes 6 pieces of wood to make a box. Rachel's class has 302 pieces of wood.

a) How many boxes can the class make?

b) What did you do with the remainder? Why?

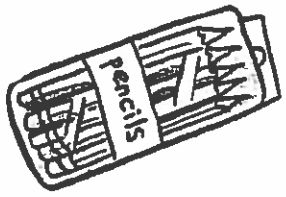
_____

_____

At-Home Help

Read the problem to decide what to do with the remainder. For example, sometimes you can ignore the remainder. Sometimes you can use the nearest whole number. Sometimes you can express the remainder as a decimal.

2. Mateo is buying pencils for the school fair. There are 5 pencils in each package. Mateo needs 68 pencils.



a) How many packages should he buy?

b) What did you do with the remainder? Why?

_____

_____

3. Six students earned $243. They divided the money equally.

a) How much money did each student get?

b) What did you do with the remainder? Why?

_____

Dividing 3-Digit Numbers by 1 Digit with a Remainder

Keep following the same long division steps, but at the end, make sure your remainder is smaller than the divisor.

Example:

$$\begin{array}{r} 175 \text{ r}1 \\ 3\overline{)526} \\ -3\downarrow \\ \hline 22 \\ -21\downarrow \\ \hline 16 \\ -15 \\ \hline 1 \end{array}$$

Solve for the quotients.

1. $2\overline{)357}$
2. $4\overline{)975}$
3. $5\overline{)823}$
4. $5\overline{)348}$
5. $7\overline{)439}$
6. $8\overline{)591}$

More Practice with 3-Digit Numbers

Match each problem to its quotient. Some may have a remainder; others may not.

1. $4\overline{)918}$
2. $4\overline{)228}$
3. $5\overline{)378}$
4. $9\overline{)989}$
5. $6\overline{)822}$
6. $8\overline{)987}$

a. 109 r8
b. 123 r3
c. 57
d. 137
e. 75 r3
f. 229 r2

Name: _____ Date: _____

Chapter 9

Lesson 10

Solving Problems by Guessing and Testing

GOAL

Guess and test to solve division problems.

1. 240 cans were packed in equal boxes. There were fewer than 10 boxes. How many boxes could there be? List 3 possibilities.

At-Home Help

You can use guessing and testing to solve division problems. First, guess what you think the answer might be. Then check your answer. If necessary, guess again, using a higher or lower number.

2. Some friends sold 125 magazines to raise money for a trip. There were fewer than 10 people in the group. Each person sold the same number of magazines.

a) How many people were in the group? Use guessing and testing to solve.

b) How many magazines did each person in the group sell?

3. Another group sold 336 magazines. There were fewer than 10 people in the group. Each person sold the same number of magazines.

a) How many people could be in the group? List 3 possibilities.

b) For each possibility, how many magazines did each person sell?

Name: _____ Date: _____

Chapter 9 Test Yourself

Circle the correct answer.

1. Calculate 35 ÷ 7.

A. 1 **B.** 3 **C.** 5 **D.** 7

2. Calculate 42 ÷ 6.

A. 6 **B.** 5 **C.** 8 **D.** 7

3. Calculate 120 ÷ 6.

A. 10 **B.** 20 **C.** 50 **D.** 30

4. Calculate 400 ÷ 2.

A. 200 **B.** 150 **C.** 75 **D.** 80

5. Calculate 540 ÷ 9.

A. 50 **B.** 30 **C.** 14 **D.** 60

6. Estimate 322 ÷ 8. Use your estimate to identify the correct answer below.

A. 20.25 **B.** 50.25 **C.** 30.25 **D.** 40.25

7. Calculate 76 ÷ 4.

A. 17 **B.** 19 **C.** 21 **D.** 23

8. Jay and 5 friends baked 414 muffins for a bake sale.
Each person baked the same number of muffins.
How many muffins did each person bake?

A. 69 muffins **B.** 82 muffins **C.** 23 muffins **D.** 77 muffins

9. Cara divided 123 marbles equally into 6 bags.
How many marbles were left over?

A. 1 marble **B.** 2 marbles **C.** 5 marbles **D.** 3 marbles

10. Four people divided $86 evenly between them.
How much money did each person get?

A. $19.75 **B.** $20.25 **C.** $21.50 **D.** $22.25

Estimating Quotients

Name _____

Estimate $3\overline{)73}$.

When you estimate you do not need an exact answer.

Use a smaller fact close to $3\overline{)7}$. → Divide.

$3\overline{)73}$ — 2 $3\overline{)6}$ is a smaller fact close to $3\overline{)7}$.

Write 2 in the tens place. — $\begin{array}{r}20\\3\overline{)73}\end{array}$

Write zero to complete the estimate.

The estimate is 20.

Estimate.

1. $4\overline{)68}$ — $\begin{array}{r}10\\4\overline{)68}\end{array}$

   $4\overline{)4}$ is close to $4\overline{)6}$.

   Write 1 in the tens place.

   Write 0 to complete the estimate.

2. $2\overline{)57}$

   _____ is close to $2\overline{)5}$.

   Write _____ in the tens place.

   Write _____ to complete the estimate.

3. $3\overline{)43}$

   _____ is close to $3\overline{)4}$.

   Write _____ in the tens place.

   Write _____ to complete the estimate.

Circle the closer fact to estimate. Write the estimated quotient.

4. $2\overline{)63}$ a. $2\overline{)4}$ b. $2\overline{)6}$

5. $4\overline{)95}$ a. $4\overline{)4}$ b. $4\overline{)8}$

6. $3\overline{)41}$ a. $3\overline{)3}$ b. $3\overline{)6}$

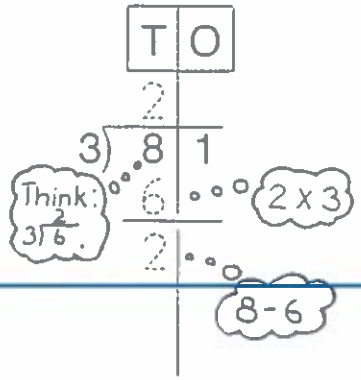
7. $5\overline{)67}$ a. $5\overline{)5}$ b. $5\overline{)10}$

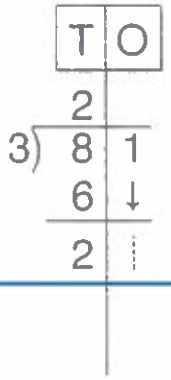
Dividing with Trading

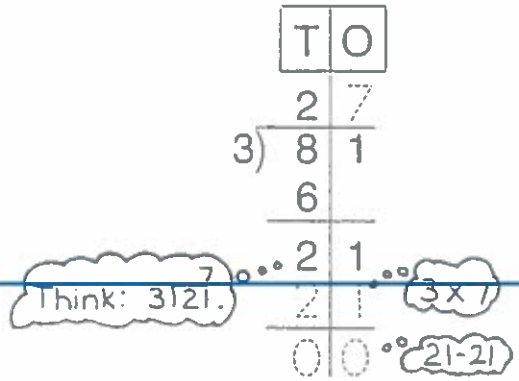
Name _____

Follow the steps to find the quotient of 81 ÷ 3.

Divide the tens. ⇒ Bring down the ones. ⇒ Divide again.







The quotient is 27.

Complete to find the quotient.

1. T O
   6) 8 4
   6 ↓
   2 4

2. T O
   4) 6 4
   4
   2

3. T O
   5) 7 5
   5

4. T O
   3
   2) 7 8

Complete.

5. T O
   4) 7 6

6. T O
   5) 8 5

7. T O
   2) 9 4

8. T O
   7) 7 7

Dividing 2-Digit Numbers

Name ______________________________

Follow the steps to divide.

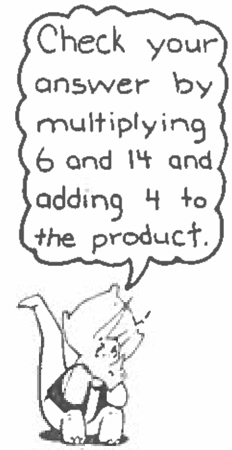
Divide the tens. → Bring down the ones. → Divide again.

T	O
1	
6) 8	8
6	
2	

Think: 6)6. (6×1) (8−6)

T	O
1	
6) 8	8
6	↓
2	8

T	O	
1	4	R4
6) 8	8	
6		
2	8	
2	4	
	4	



Complete.

1. T O: 1 8 R ___; 4) 7 4; 4 ↓; 3 4

2. T O: 1 R ___; 5) 6 8; 5 ↓; 1 8

3. T O: 1 R ___; 6) 9 2; 6; 3

4. T O: 2 R ___; 3) 8 3; 6

Divide.

5. T O: R ___; 5) 9 2

6. T O: R ___; 3) 6 5

7. T O: R ___; 8) 9 7

8. T O: R ___; 2) 5 7

Estimating Quotients

Name ______________________________

Estimate the quotient of 3)238 .

First think of an easier division. → Then think of a smaller division fact close to 3)23 . → Record your estimate.

3)238

3)23

7
3)21

Write 7 in the tens place.

70
3)238

Write 0 to complete the estimate.

The estimated quotient is 70.

Estimate the quotient.

1. 60
4)253

Think: it is easier to divide 4)25.
A close divison fact is 4)24 (6).

2. 100
5)698

Think: it is easier to divide 5)6 .
A close division fact is 5)5 (1).

3. 2)521

Think: it is easier to divide ______.
A close division fact is ______.

4. 7)437

Think: it is easier to divide ______.
A close division fact is ______.

Estimate the quotient. Write a division fact that helps.

5. 2)137 ___)___

6. 4)923 ___)___

7. 3)736 ___)___

Estimate the quotient.

8. 8)586

9. 7)655

10. 4)265

11. 6)532

Name: _____ Date: _____

Chapter 9 Test Page 1

Grade 5

/26

1. Describe two ways to calculate 36 ÷ 9. /2

_____

_____

2. Calculate.

a) 18 ÷ 6 = _____ $6 \times \square = 18$

b) 32 ÷ 8 = _____ $8 \times \square = 32$

c) 27 ÷ 3 = _____ $3 \times \square = 27$

d) 35 ÷ 5 = _____ $\square \times 5 = 35$

e) 42 ÷ 7 = _____ $\square \times 7 = 42$

f) 14 ÷ 2 = _____ $\square \times 2 = 14$

/6

3. A restaurant ordered 42 candles in packages of 6.
How many packages did they order? Use a number line. Then answer

/2

4. Ella read 320 minutes over 8 days.
She read the same amount each day.
How many minutes did she read each day? Show your work

/2

5. Estimate. Rounding with no remainders.

a) 251 ÷ 5 is about _____

b) 178 ÷ 9 is about _____

c) 433 ÷ 6 is about _____

d) 632 ÷ 8 is about _____

/4

/16

Name: _____ Date: _____

Chapter 9 Test Page 2 Grade 5

9. A 520 cm piece of aluminum wire is cut into 8 equal pieces. How long is each piece? Use base ten blocks to answer.

Hundreds	Tens	Ones

/2

10. A soccer field measures approximately 110 m long. A cone is placed every 8 m along the field. How many cones are needed? Use long division and show your work.

/2

11. Anthony spent $231 on 6 jackets. How much did each jacket cost if they all cost the same amount? Solve remainders as decimals.

/2

12. $6\overline{)49}$ R ____

13. $7\overline{)65}$ R ____

/4

/10