Launch Into Math 1

Launch Into Multiplication and Division Strategies

Home on the Range, Florida Style

When you think of cowboys, you might think of the Wild West, but Florida had its own version of cowboys called cowhunters. In the late 1800s, cowhunters on horseback herded cattle roaming freely on the ranges of Central Florida.

The cattle herded by the cowhunters were called scrub cows. A small but scrappy breed of cattle with tall horns, the scrub cows grazed openly in grasslands and swamps.

In 1949, all cows were banned from roaming freely, and the number of scrub cows decreased to 30. Measures were taken to preserve these Florida natives, and the number of scrub cows has been increasing ever since.

Cows on the Trail

- Scrub cattle were driven on a trail that extended from Florida's west coast to its east coast. The cows were then shipped to Cuba, the Bahamas, and Key West. Many roads, including U.S. Highway 441, started out as part of this trail.
- The last major cattle drive across the state of Florida was in 1937.
- The weight of a typical cow is between 1,400 and 1,600 pounds. A scrub cow weighs between 600 and 800 pounds.
- *Head of cattle* means number of cows.

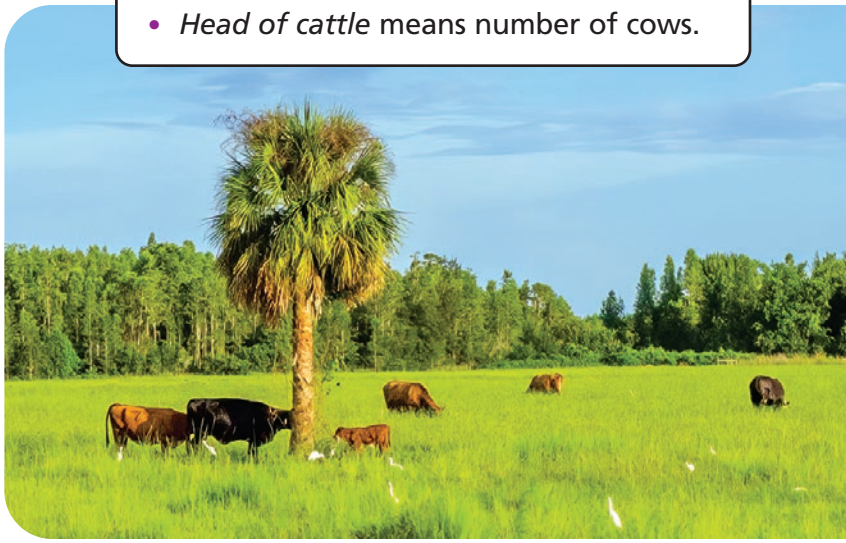
Three Reads

First, read to understand the situation.

Next, read to understand the math.

Then, read to ask what mathematical questions could be asked about the problem.

Florida currently is home to almost 900,000 head of cattle raised on over 18,000 cattle ranches across the state.



Go Online

For the interactive lesson

Read the final question. Make a plan to solve the problem.

Florida currently is home to almost 900,000 head of cattle raised on over 18,000 cattle ranches across the state.

Corey wants to find how many cows are at each ranch if each ranch has the same number of cows.

Write, model, or draw to solve the problem.

Discuss with a partner or in a group.

Math Talk

How might Corey's estimate not be useful in figuring out information about the number of cows on a ranch? What might be a more helpful question to ask?

Chapter 1

Name _____

Understand Multiplication and Division of Whole Numbers

Show What You Know

Place Value
Write the value of each digit for the given number.

1. 2,904

2 _____

9 _____

0 _____

4 _____

2. 6,423

6 _____

4 _____

2 _____

3 _____

Regroup Through Thousands
Regroup. Write the missing numbers.

3. 40 tens = _____ hundreds

4. 60 hundreds = _____ thousands

5. _____ tens 15 ones = 6 tens 5 ones

6. 18 tens 20 ones = _____ hundreds

Missing Factors
Find the missing factor.

7. $4 \times$ _____ $= 24$

8. $6 \times$ _____ $= 48$

9. _____ $\times 9 = 63$

MATH in the Real World

Use the clues at the right to find the 7-digit number. What is the number?

Clues

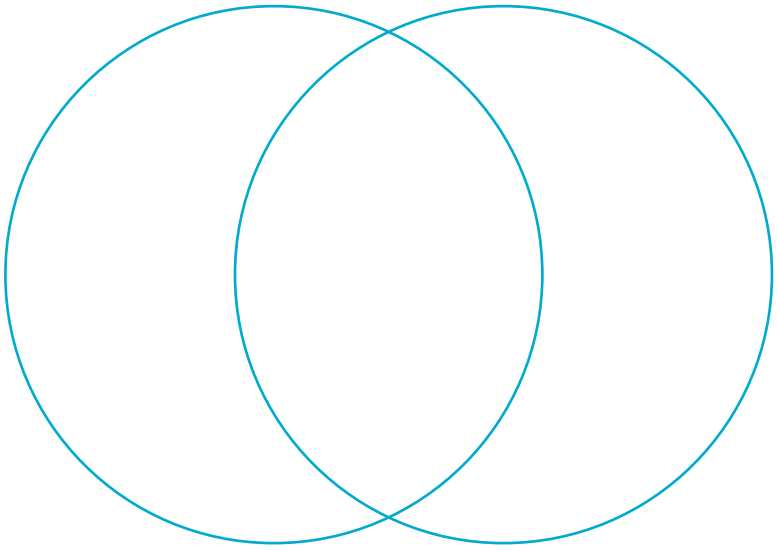
- This 7-digit number is 8,920,000 when rounded to the nearest ten thousand.
- The digits in the tens and hundreds places are the least and same value.
- The value of the thousands digit is double that of the ten thousands digit.
- The sum of all its digits is 24.

Vocabulary Builder

Go Online For more help

Visualize It

Sort the review words into the Venn diagram.



Multiplication Division

Connect to Vocabulary

Review Words

- compatible numbers
- divide
- dividend
- divisor
- estimate
- factor
- multiply
- partial quotient
- place value
- product
- quotient
- remainder

Understand Vocabulary

Write the words that answer the question "What am I?"

1. I am the answer to a division problem.

   _____

2. I am the amount leftover after making equal groups by dividing.

   _____

3. I am the number that is being divided.

   _____

4. I am one of two numbers being multiplied.

   _____

5. I am an estimated number that can be divided easily by another.

   _____

Name _____

Multiply by Multi-Digit Numbers

I Can multiply by multi-digit whole numbers.

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.1
- **Mathematical Thinking & Reasoning** MTR.3.1, MTR.4.1, MTR.6.1, MTR.7.1

UNLOCK the Problem

A tiger can eat as much as 40 pounds of food at a time but it may go for several days without eating anything. Suppose a Siberian tiger in the wild eats an average of 18 pounds of food per day. How much food will the tiger eat in 28 days if he eats that amount each day?

Use place value and regrouping.

STEP 1 Estimate: 28×18

Think: $30 \times 20 =$ _____

STEP 2 Multiply by the ones.

$$\begin{array}{r} 28 \\ \times\ 18 \\ \hline \square \end{array}$$

28×8 ones = _____ ones

STEP 3 Multiply by the tens.

$$\begin{array}{r} 28 \\ \times\ 18 \\ \hline \square \\ \square \end{array}$$

28×1 ten = _____ tens, or _____ ones

STEP 4 Add the partial products.

$$\begin{array}{r} 28 \\ \times\ 18 \\ \hline \square \quad \leftarrow 28 \times 8 \\ \square \quad \leftarrow 28 \times 10 \\ +\ \_\_\_\_ \\ \hline \square \end{array}$$

So, on average, a Siberian tiger may eat _____ pounds of food in 28 days.

Remember

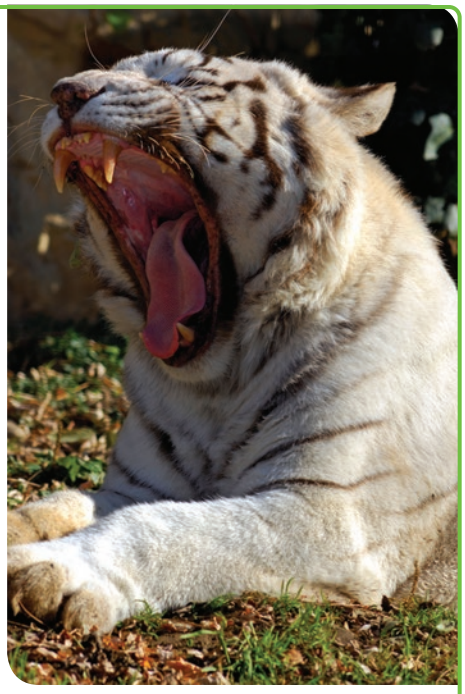
Use patterns of zeros to find the product of multiples of 10.

$3 \times 4 = 12$

$3 \times 40 = 120$ $\quad$ $30 \times 40 = 1{,}200$

$3 \times 400 = 1{,}200$ $\quad$ $300 \times 40 = 12{,}000$

Example



A Siberian tiger was observed sleeping 1,287 minutes during the course of one day. If he slept for that long every day, how many minutes would he sleep in one year? Assume there are 365 days in one year.

STEP 1 Estimate: 1,287 × 365

Think: 1,000 × 400 = _____

STEP 2 Multiply by the ones.

$$\begin{array}{r} 1{,}287 \\ \times\ 365 \\ \hline \end{array}$$

1,287 × 5 ones = _____ ones

STEP 3 Multiply by the tens.

$$\begin{array}{r} 1{,}287 \\ \times\ 365 \\ \hline \end{array}$$

1,287 × 6 tens = _____ tens, or _____ ones

STEP 4 Multiply by the hundreds.

$$\begin{array}{r} 1{,}287 \\ \times\ 365 \\ \hline \end{array}$$

1,287 × 3 hundreds = _____ hundreds, or _____ ones

STEP 5 Add the partial products.

$$\begin{array}{rl} 1{,}287 & \\ \times\ 365 & \\ \hline & \leftarrow 1{,}287 \times 5 \\ & \leftarrow 1{,}287 \times 60 \\ + & \leftarrow 1{,}287 \times 300 \\ \hline \end{array}$$

So, the tiger would sleep _____ minutes in one year.

Math Talk

MTR 6.1 Assess the reasonableness of solutions.

Are there different numbers you could have used in Step 1 to find an estimate that is closer to the actual answer? Explain.

Name _____

Share and Show

Math Board

Complete to find the product.

1.

			6	4	
	×		4	3	
					← 64 × ____
+					← 64 × ____

2.

			5	7	1	
	×			3	8	
						← 571 × ____
+						← 571 × ____

Estimate. Then find the product using the method of your choice.

3. Estimate: _____

$$\begin{array}{r} 124 \\ \times\ 385 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 12{,}837 \\ \times\ 63 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 2{,}384 \\ \times\ 45 \\ \hline \end{array}$$

On Your Own

Estimate. Then find the product using the method of your choice.

6. Estimate: _____

$$\begin{array}{r} 28 \\ \times\ 22 \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 693 \\ \times\ 476 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 5{,}271 \\ \times\ 129 \\ \hline \end{array}$$

Copy and estimate. Then find the product using the method of your choice.

9. 54×31

10. 42×26

11. 389×231

12. 63×16

13. $37{,}204 \times 41$

14. 534×25

15. $8{,}722 \times 39$

16. 957×243

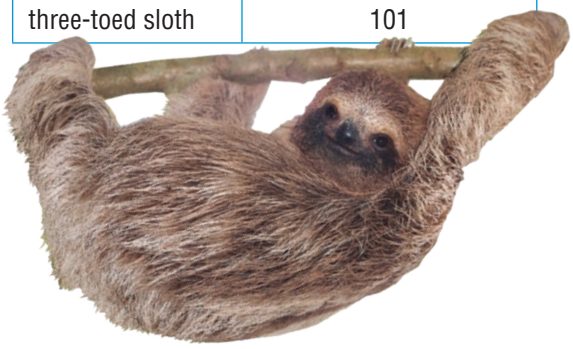
17. One case of books weighs 35 pounds. One case of magazines weighs 23 pounds. A bookstore wants to ship 72 cases of books and 94 cases of magazines to another store. What is the total weight of the shipment?

_____

Problem Solving · Applications Real World

Use the table for Problems 18–20.

Animal Sleep Amounts	
Animal	**Amount (usual hours per week)**
jaguar	77
giant armadillo	127
owl monkey	119
platypus	98
three-toed sloth	101



18. How much sleep does a jaguar get in 1 year?

_____

19. In 1 year, how many more hours of sleep does a giant armadillo get than a platypus?

MATH on the Spot

_____

20. MTR Owl monkeys sleep during the day, waking about 15 minutes after sundown to find food. At midnight, they rest for an hour or two, then continue to feed until sunrise. They live about 27 years. How many hours of sleep does an owl monkey that lives 27 years get in its lifetime?

_____

21. Tickets to a museum cost $17 each. For a field trip, the museum offers a $4 discount on each ticket. How much will tickets for 32 students cost?

_____

22. Camila earns $21 per day. For 22a–22d, select True or False for each statement.

22a. Camila earns $421 for 20 days of work.

○ True ○ False

22b. Camila earns $315 for 15 days of work.

○ True ○ False

22c. Camila earns $273 for 13 days of work.

○ True ○ False

22d. Camila earns $250 for 13 days of work.

○ True ○ False

Show the Math

Demonstrate Your Thinking

Name _____

Multiply by Multi-Digit Numbers

Go Online
Interactive Examples

Estimate. Then find the product using the method of your choice.

23. Estimate: 4,000

$$\begin{array}{r} 82 \\ \times\ 49 \\ \hline 738 \\ +\ 3{,}280 \\ \hline 4{,}018 \end{array}$$

24. Estimate: _____

$$\begin{array}{r} 8{,}792 \\ \times\ 68 \\ \hline \end{array}$$

25. Estimate: _____

$$\begin{array}{r} 1{,}537 \\ \times\ 242 \\ \hline \end{array}$$

26. 523×267

27. $15{,}309 \times 29$

28. 612×87

Problem Solving Real World

29. A company shipped 48 boxes of canned dog food. Each box contains 24 cans. How many cans of dog food did the company ship in all?

30. There were 135 cars in a rally. Each driver paid a $25 fee to participate in the rally. How much money did the drivers pay in all?

31. WRITE Math Write a problem multiplying a 3-digit number by a 2-digit number. Show all the steps to solve it by using place value and regrouping and by using partial products.

Lesson Check

32. A chessboard has 64 squares. At a chess tournament 84 chessboards were used. How many squares are there on 84 chessboards?

33. Last month, a manufacturing company shipped 452 boxes of ball bearings. Each box contains 48 ball bearings. How many ball bearings did the company ship last month?

Spiral Review

34. What is the standard form of the number three hundred sixty thousand, five hundred twenty?

35. Use compatible numbers to estimate $55{,}948 \div 7$

36. Find the product.

$\frac{1}{4} \times 120$

37. A sporting goods store ordered 144 cans of tennis balls. Each can contains 3 balls. How many tennis balls did the store order?

Name _____

Represent Division with 2-Digit Divisors

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.2
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.4.1, MTR.5.1

I Can use manipulatives and drawings to represent and divide multi-digit whole numbers.

Investigate

Materials ■ base-ten blocks

There are 156 students in the Carville Middle School chorus. The music director wants the students to stand with 12 students in each row for the next concert. How many rows will there be?

A. Use base-ten blocks to model the dividend, 156.

B. Place 2 tens below the hundred to form a rectangle. How many groups of 12 does the rectangle show? How much of the dividend is not shown in this rectangle?

_____

C. Combine the remaining tens and ones into as many groups of 12 as possible. How many groups of 12 are there?

_____

D. Place these groups of 12 on the right side of the rectangle to make a larger rectangle.

E. The final rectangle shows _____ groups of 12.

So, there will be _____ rows of 12 students.

Draw Conclusions

1. MTR Explain why you still need to make groups of 12 after Step B.

_____

_____

2. MTR Describe how you can use base-ten blocks to model the quotient 176 ÷ 16.

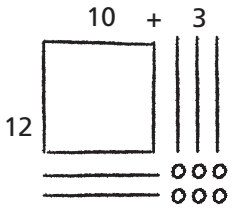
_____

_____

_____

Make Connections

The two sets of groups of 12 that you found in the Investigate are partial quotients. First you found 10 groups of 12 and then you found 3 more groups of 12. Sometimes you may need to regroup before you can show a partial quotient.



You can use a quick picture to record the partial products.

Divide. 180 ÷ 15

MODEL Use base-ten blocks.

STEP 1 Model the dividend, 180, as 1 hundred 8 tens.

Model the first partial quotient by making a rectangle with the hundred and 5 tens. In the Record section, cross out the hundred and tens you use.

The rectangle shows _____ groups of 15.

STEP 2 Additional groups of 15 cannot be made without regrouping.

Regroup 1 ten as 10 ones. In the Record section, cross out the regrouped ten.

There are now _____ tens and _____ ones.

STEP 3 Decide how many additional groups of 15 can be made with the remaining tens and ones. The number of groups is the second partial quotient.

Make your rectangle larger by including these groups of 15. In the Record section, cross out the tens and ones you use.

There are now _____ groups of 15.

So, 180 ÷ 15 is _____.

RECORD Use quick pictures.

Draw the first partial quotient.

Draw the first and second partial quotients.

Math Talk

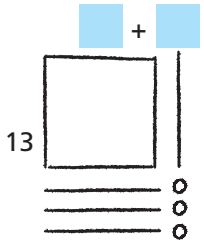
MTR 2.1 **Demonstrate understanding in multiple ways.**

Explain how your visual model shows the quotient.

Share and Show Math Board

Use the quick picture to divide.

1. 143 ÷ 13



Name _____

Divide. Use base-ten blocks.

2. 168 ÷ 12

3. 154 ÷ 14

4. 187 ÷ 11

On Your Own

Divide. Draw a quick picture.

5. 165 ÷ 11

6. 216 ÷ 18

7. 182 ÷ 13

8. 228 ÷ 12

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain how Problem 7 is different from Problems 6 and 8.

9. On Monday, the Mars rover traveled 330 cm. On Tuesday, it traveled 180 cm. If the rover stopped every 15 cm to recharge, how many more times did it need to recharge on Monday than on Tuesday?

_____

Connect to Social Studies

Pony Express

The Pony Express used men riding horses to deliver mail between St. Joseph, Missouri, and Sacramento, California, from April 1860 to October 1861. The trail between the cities was approximately 2,000 miles long. The first trip from St. Joseph to Sacramento took 9 days 23 hours. The first trip from Sacramento to St. Joseph took 11 days 12 hours.

Solve.

10. Two Pony Express riders each rode part of a 176-mile trip. Each rider rode the same number of miles. They changed horses every 11 miles. How many horses did each rider use?

MATH on the Spot

11. Suppose a Pony Express rider was paid $192 for 12 weeks of work. If he was paid the same amount each week, how much was he paid for 3 weeks of work?

12. MTR Suppose three riders rode a total of 240 miles. If they used a total of 16 horses, and rode each horse the same number of miles, how many miles did they ride before replacing each horse?

13. Suppose it took 19 riders a total of 11 days 21 hours to ride from St. Joseph to Sacramento. If they all rode the same number of hours, how many hours did each rider ride?

14. Scientists collect 144 rock samples. The samples will be divided among 12 teams of scientists for analysis. Draw a quick picture to show how the samples can be divided among the 12 teams.

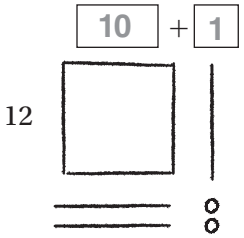
Name _____

Represent Division with 2-Digit Divisors

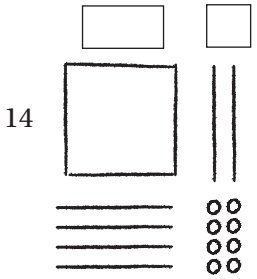
Go Online
Interactive Examples

Use the quick picture to divide.

15. $132 \div 12 =$ 11



16. $168 \div 14 =$ _____



Divide. Draw a quick picture.

17. $192 \div 16 =$ _____

18. $169 \div 13 =$ _____

Problem Solving Real World

19. There are 182 seats in a theater. The seats are evenly divided into 13 rows. How many seats are in each row?

_____

20. There are 156 students at summer camp. The camp has 13 cabins. An equal number of students sleep in each cabin. How many students sleep in each cabin?

_____

21. WRITE Math Write a division problem that has a 3-digit dividend and a divisor between 10 and 20. Show how to solve it by drawing a quick picture.

_____

_____

Lesson Check

22. There are 198 students in the soccer league. There are 11 players on each soccer team. How many soccer teams are there?

23. Olier earned $187 for 17 hours of work. How much did Olier earn per hour?

Spiral Review

24. What is the number seven hundred thousand, twenty written in standard form?

25. Round 79,389 to the nearest thousand.

26. To transport 228 people to an island, the island ferry makes 6 different trips. On each trip, the ferry carries the same number of people. How many people does the ferry transport on each trip?

27. Opaline sells 36 tickets to the school talent show. Each ticket costs $14. How much money does Opaline collect for the tickets she sells?

Name _____

Partial Quotients

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.2
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.6.1, MTR.7.1

I Can use partial quotients to divide multi-digit whole numbers by 2-digit divisors.

UNLOCK the Problem

People in the United States eat about 23 pounds of pizza per person every year. If you ate that much pizza each year, how many years would it take you to eat 775 pounds of pizza?

- Rewrite in one sentence the problem you are asked to solve.

_____

_____

Divide by using partial quotients.

775 ÷ 23

STEP 1

Subtract multiples of the divisor from the dividend until the remaining number is less than the multiple. The easiest partial quotients to use are multiples of 10.

COMPLETE THE DIVISION PROBLEM.

$$\begin{array}{r} 23\overline{)775} \\ -\ \square \\ \hline 545 \end{array}$$

10×23 | 10

STEP 2

Subtract smaller multiples of the divisor until the remaining number is less than the divisor. Then add the partial quotients to find the quotient.

775 ÷ 23 is _____ r _____.

Write the quotient 775 ÷ 23 as a fraction. _____

So, it would take you more than 33 years to eat 775 pounds of pizza.

Remember

Depending on the question, a remainder may or may not be used in answering the question. Sometimes the quotient is adjusted based on the remainder.

Example

Myles is helping his father with the supply order for his pizza shop. For next week, the shop will need 1,450 ounces of mozzarella cheese. Each package of cheese weighs 32 ounces. Complete Myles's work to find how many packages of mozzarella cheese he needs to order.

$32\overline{)1{,}450}$

$-\ 320$	_____ × 32	
$1{,}130$		
$-\ 320$	_____ × 32	
810		
-320	_____ × 32	
490		
-320	_____ × 32	
170		
-160	_____ × 32	+ _____
10		

1,450 ÷ 32 is _____ r _____.

So, he needs to order _____ packages of mozzarella cheese.

Math Talk

MTR 6.1 Assess the reasonableness of solutions.

What does the remainder represent? Explain how a remainder will affect your answer.

Try This! Use different partial quotients to solve the problem above. Write the remainder as a fraction.

$32\overline{)1{,}450}$

Math Idea

Using different multiples of the divisor to find partial quotients provides many ways to solve a division problem. Some ways are quicker, but all result in the same answer.

Name _____

Share and Show

Math Board

Divide. Use partial quotients. Write the remainder as a fraction.

1. $18\overline{)648}$

2. $62\overline{)3,186}$

3. $32,858 \div 57$

Math Talk

MTR 3.1 **Complete tasks with mathematical fluency.**

Explain what the greatest possible whole-number remainder is if you divide any number by 23.

On Your Own

Divide. Use partial quotients. Write the remainder as a fraction.

4. $73\overline{)584}$

5. $51\overline{)1,831}$

6. $82\overline{)2,964}$

7. $892 \div 26$

8. $61,056 \div 48$

9. $12,950 \div 67$

Copy and divide. Use partial quotients. Write the remainder as a fraction.

10. 653 ÷ 42

11. 946 ÷ 78

12. 412 ÷ 18

13. 871 ÷ 87

14. 1,544 ÷ 34

15. 2,548 ÷ 52

16. 92,740 ÷ 83

17. 4,135 ÷ 66

18. The 5th grade is having a picnic this Friday. There will be 182 students and 274 adults. Each table seats 12 people. How many tables are needed?

_____

Problem Solving · Applications

Use the table to solve Problems 19–22.

Each year each person in the U.S. eats about...
- 68 quarts of popcorn
- 53 pounds of bread
- 19 pounds of apples
- 14 pounds of turkey

19. How many years would it take for a person in the United States to eat 855 pounds of apples?

20. How many years would it take for a person in the United States to eat 1,120 pounds of turkey?

21. If 6 people in the United States each eat the average amount of popcorn for 5 years, how many quarts of popcorn will they eat?

22. MTR In the United States, a person eats more than 40,000 pounds of bread in a lifetime if he or she lives to be 80 years old. Does this statement make sense, or is it nonsense? Explain.

23. In a study, 9 people ate a total of 1,566 pounds of potatoes in 2 years. If each person ate the same amount each year, how many pounds of potatoes did each person eat in 1 year?

MATH on the Spot

24. Nyree divided 495 by 24 using partial quotients. Find the quotient and remainder. Explain your answer using numbers and words.

$24\overline{)495}$

Name _____

Partial Quotients

Go Online
Interactive Examples

Divide. Use partial quotients. Write the remainder as a fraction.

25. $18\overline{)236}$

$18\overline{)236}$
$-\ 180$ ← 10×18 | 10
56
$-\ 36$ ← 2×18 | 2
20
$-\ 18$ ← 1×18 | $+\ 1$
2 | 13

$236 \div 18$ is $13\frac{2}{18}$.

26. $36\overline{)540}$

27. $27\overline{)624}$

28. $9{,}514 \div 28$

29. $322 \div 14$

30. $62{,}715 \div 25$

Problem Solving Real World

31. A factory processes 1,560 ounces of olive oil per hour. The oil is packaged into 24-ounce bottles. How many bottles does the factory fill in one hour?

_____

32. A pond at a hotel holds 14,274 gallons of water. The groundskeeper drains the pond at a rate of 78 gallons of water per hour. How long will it take to drain the pond?

_____

33. WRITE Math Explain how using partial quotients to divide is similar to using the Distributive Property to multiply.

_____

_____

_____

Lesson Check

34. Yvette has 336 eggs to put into cartons. She puts one dozen eggs into each carton. How many cartons does she fill?

35. Felicity mows a 2,450-square-foot yard in 15 minutes. How many square feet of the yard does she mow in one minute?

Spiral Review

36. Raul has 56 bouncy balls. He puts the balls into 4 green gift bags. If he puts the same number of balls into each bag, how many balls does he put into each green bag?

37. Mario uses 5 ounces of chicken stock to make one batch of soup. He has a total of 400 ounces of chicken stock. How many batches of soup can Mario make?

38. Michelle buys 13 bags of gravel for her fish aquarium. If each bag weighs 12 pounds, how many pounds of gravel did she buy?

39. What is the number 305,012 written in expanded notation?

Name _____

Estimate with 2-Digit Divisors

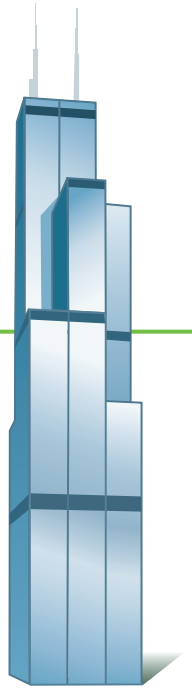
Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.2
- **Mathematical Thinking & Reasoning** MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use compatible numbers to estimate quotients.

MTR You can estimate quotients using compatible numbers that are found by using basic facts and patterns.

$35 \div 5 = 7$ ← basic fact
$350 \div 50 = 7$
$3{,}500 \div 50 = 70$
$35{,}000 \div 50 = 700$



UNLOCK the Problem

The observation deck of a skyscraper in Chicago, Illinois, is 1,353 feet above the ground. Elevators lift visitors to that level in 60 seconds. About how many feet do the elevators travel per second?

Estimate. 1,353 ÷ 60

STEP 1

Use two sets of compatible numbers to find two different estimates.

1,353 ÷ 60
↓
1,200 ÷ 60

1,353 ÷ 60
↓
1,800 ÷ 60

STEP 2

Use patterns and basic facts to help estimate.

12 ÷ 6 = _____
120 ÷ 60 = _____
1,200 ÷ 60 = _____

18 ÷ 6 = _____
_____ ÷ _____ = _____
_____ ÷ _____ = _____

The elevators travel about _____ to _____ feet per second.

The more reasonable estimate is _____ because

_____ is closer to 1,353 than _____ is.

So, the observation deck elevators in the skyscraper travel about _____ feet per second.

Example Estimate money.

Miriam saved $650 to spend during her 18-day trip to Chicago. She doesn't want to run out of money before the trip is over, so she plans to spend about the same amount each day. Estimate how much she can spend each day.

Estimate. $18\overline{)\$650}$

$600 ÷ _____ = $30 or _____ ÷ 20 = $40

So, Miriam can spend about _____ to _____ each day.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Would it be more reasonable to have an estimate or an exact answer for this example? Explain your reasoning.

- MTR Which estimate do you think is the better one for Miriam to use? Explain your reasoning. _____

_____

_____

Try This! Use compatible numbers.

Find two estimates.

$52\overline{)415}$

Estimate the quotient.

$38\overline{)\$2,764}$

Share and Show Math Board

Use compatible numbers to find two estimates.

1. $22\overline{)154}$

$140 ÷ 20 =$ _____

$160 ÷ 20 =$ _____

2. $68\overline{)503}$

3. $81\overline{)7,052}$

4. $33\overline{)291}$

5. $58\overline{)2,365}$

6. $19\overline{)45,312}$

Name _____

On Your Own

Use compatible numbers to find two estimates.

7. $42\overline{)396}$

8. $59\overline{)4{,}130}$

9. $28\overline{)22{,}684}$

Use compatible numbers to estimate the quotient.

10. $19\overline{)22{,}107}$

11. $25\overline{)\$595}$

12. $86\overline{)7{,}130}$

13. At an orchard, 486 green apples are to be organized into 12 green baskets and 633 red apples are to be organized into 31 red baskets. Use estimation to decide which color basket has more apples. About how many apples are in each basket of that color?

_____

14. A store owner bought a large box of 5,135 paper clips. He wants to repackage the paper clips into 18 smaller boxes. Each box should contain about the same number of paper clips. About how many paper clips should the store owner put into each box?

_____

15. Explain how you can use compatible numbers to estimate the quotient of $925 \div 29$.

_____

_____

_____

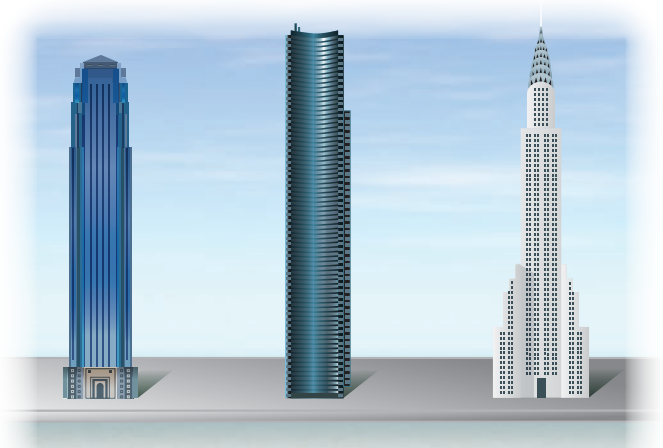
_____

Problem Solving · Applications Real World

Use the picture to solve Problems 16 and 17.

16. Use estimation to decide which building has the tallest floors. About how many meters is each floor?

MATH on the Spot



275 meters, 64 floors, Williams Tower, Texas

295 meters, 76 floors, Columbia Center, Washington

319 meters, 77 floors, Chrysler Building, New York

17. MTR About how many meters tall is each floor of the Chrysler Building? Use what you know about estimating quotients to justify your answer.

18. WRITE Math Explain how you know whether the quotient of 298 ÷ 31 is closer to 9 or to 10.

Show the Math

Demonstrate Your Thinking

19. Eli needs to save $235. To earn money, he plans to mow lawns and charge $21 for each. Write two estimates Eli could use to determine the number of lawns he needs to mow. Decide which estimate you think is the better one for Eli to use. Explain your reasoning.

20. Anik built a tower of cubes. It was 594 millimeters tall. The height of each cube was 17 millimeters. About how many cubes did Anik use? Explain your answer.

Name _____

Estimate with 2-Digit Divisors

Go Online
Interactive Examples

Use compatible numbers to find two estimates.

21. $18\overline{)1{,}322}$

$1{,}200 \div 20 = 60$
$1{,}400 \div 20 = 70$

22. $12\overline{)478}$

23. $33{,}671 \div 12$

24. $2{,}242 \div 33$

Use compatible numbers to estimate the quotient.

25. $82\overline{)5{,}514}$

26. $61\overline{)5{,}320}$

27. $28\overline{)776}$

28. $23\overline{)16{,}259}$

Problem Solving Real World

29. A cubic yard of topsoil weighs 4,128 pounds. About how many 50-pound bags of topsoil can you fill with one cubic yard of topsoil?

_____

30. An electronics store places an order for 2,665 USB flash drives. One shipping box holds 36 flash drives. About how many boxes will it take to hold all the flash drives?

_____

31. WRITE Math Create a division problem with a 2-digit divisor. Using more than 1 set of compatible numbers, observe what happens when you estimate using a different divisor, a different dividend, and when both are different. Using a calculator, compare the estimates to the answer and describe the differences.

_____

_____

_____

_____

_____

_____

_____

Lesson Check

32. Geneva has 567 earmuffs in stock. If she can put 18 earmuffs on each shelf, about how many shelves does she need for all the earmuffs?

33. Mr. Franchot pays $327 for one dozen collector's edition baseball cards. About how much does he pay for each baseball card?

Spiral Review

34. Demont can frame 9 pictures each day. He has an order for 108 pictures. How many days will it take him to complete the order?

35. Madeleine can type 3 pages in one hour. How many hours will it take her to type a 123-page report?

36. Suppose you round 432,575 to 433,000. To what place value did you round the number?

37. Etoile's catering company received an order for 118 apple pies. Etoile uses 8 apples to make one apple pie. How many apples does she need to make all 118 pies?

Name _____

Chapter 1

Chapter Review

1. Choose the numbers that make the sentence true.
Using compatible numbers, the quotient of 2,150 ÷ 43

is between

40 and 50
400 and 500
50 and 60
500 and 600

2. For 2a–2d, select True or False to indicate whether the product is correct.

2a.	2,546 × 78 = 198,588	○ True	○ False
2b.	154 × 289 = 44,506	○ True	○ False
2c.	98 × 76 = 76,448	○ True	○ False
2d.	6,439 × 821 = 528,649	○ True	○ False

3. Divide. Use partial quotients. Show your work.

31,158 ÷ 24

4. Estimate the quotient of 42,576 ÷ 68.

4a. Show how you use compatible numbers to get two estimates.

4b. Explain how you know which is the better estimate.

_____

_____

5. Estimate. Then find the product.

Estimate: _____

$$\begin{array}{r} 5{,}601 \\ \times \quad 87 \\ \hline \end{array}$$

6. Jeffery wants to save the same amount of money each week to buy a new bike. He needs $252. If he wants the bike in 14 weeks, how much money should Jeffery save each week?

$ _____

7. Sofia built a block tower that was 1,006 millimeters tall. The height of each block was 22 millimeters. About how many blocks did Sofia use?

about _____ blocks

Name _____

8. Darnel divided 575 by 14 by using partial quotients. What is the quotient? Explain your answer using numbers and words.

$$\begin{array}{r|l|l} 14\overline{)575} & & \\ -\ \square & 10 \times 14 & 10 \\ \hline 435 & & \end{array}$$

9. For 9a–9c, choose Yes or No to indicate whether the statement is correct.

9a. $623 \div 17$ is $36\frac{11}{17}$. ○ Yes ○ No

9b. $9{,}457 \div 61$ is $155\frac{2}{61}$. ○ Yes ○ No

9c. $13{,}657 \div 28$ is $177\frac{1}{8}$. ○ Yes ○ No

10. Divide. Draw a quick picture.

$156 \div 12 =$ ☐

□ = 100 | = 10 o = 1

11. There are 165 students at theater camp. There are 11 groups. If the same number of students is in each group, how many students are in each group? Draw a quick picture to solve.

_____ students

12. Choose the compatible numbers that will give the best estimate for 429 ÷ 36.

○ 300	and	○ 60
○ 350		○ 50
○ 440		○ 40

13. Raquelle earns $16 per hour. For 13a-13d, select True or False for each statement

13a. Raquelle earns $46 for 30 hours of work.
○ True ○ False

13b. Raquelle earns $384 for 24 hours of work.
○ True ○ False

13c. After she has worked 168 hours, Raquelle will have earned $672.
○ True ○ False

13d. If she works 1,397 hours this year, she will make $22,352.
○ True ○ False

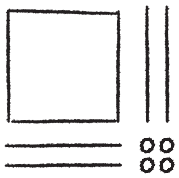
Name _____

14. Lindsey earns $33 per day at her part-time job. Complete the table to show the total amount Lindsey earns.

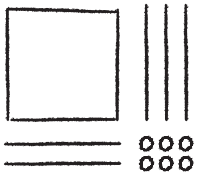
Lindsey's Earnings	
Number of Days	**Total Amount**
3	
8	
14	

15. Write the letter for each quick picture under the division problem it represents.

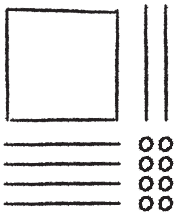
A



B



C



$156 \div 12 = 13$

$168 \div 12 = 14$

$144 \div 12 = 12$

16. Jean Claude's factory produces 1,840 cases of pencils daily. How many cases can the factory produce in 180 days?

_____ pencils

17. Rasheed needs to save $231. To earn money, he plans to wash cars and charge $12 per car. Write two estimates Rasheed could use to determine how many cars he needs to wash.

18. Shiloh tracks her sleeping patterns and finds that she sleeps an average of 479 minutes each night.

18a. How many minutes of sleep does she get in 4 weeks?

_____ minutes

18b. About how many hours is this? (Hint: There are 60 minutes in a hour.)
about _____ hours

19. The Pico family made 24,784 ounces of vinegar. The vinegar is packaged into 16-ounce bottles. How many bottles of vinegar can they fill?

_____ bottles