



4

Some comets can be seen from Earth fairly often. About how many of these comets are seen each year? You will find out in Lesson 4-2.

Review What You Know!

Vocabulary

Choose the best term from the box.

- dividend
- quotient
- divisor
- remainder

1. In the number sentence $180 \div 45 = 4$, 180 is the ? and 4 is the ?.
2. The number used to divide another number is the ?.
3. $15 \div 6 = 2$ with a ? of 3.

Place Value

Copy and complete.

4. 7,896 is the same as 7 ? + 8 ? + 9 ? + 6 ?.
5. 36,000 is the same as 36 ?.
6. 75,800 is the same as 75 ? + 8 ?.

Rounding

Round each number to the place of the underlined digit.

7. 679
8. 3,769
9. 90,324
10. 877
11. 6,542
12. 42,376

Writing to Explain Write an answer to the question.

13. Explain one way to estimate $738 \div 84$.



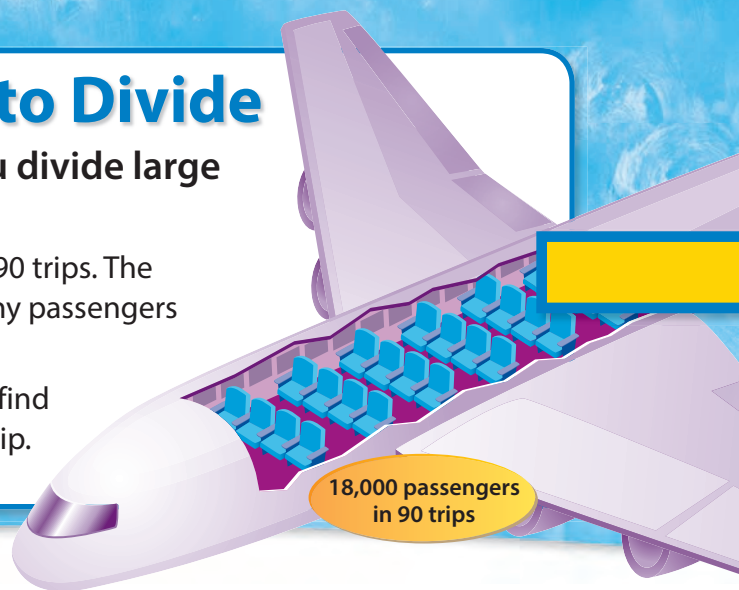
NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.

Using Patterns to Divide

How can patterns help you divide large multiples of 10?

A jet carries 18,000 passengers in 90 trips. The plane is full for each trip. How many passengers does the plane hold?

Choose an Operation Divide to find how many people were on each trip.



Guided Practice*

Do you know HOW?

In 1 through 4, find each quotient. Use mental math.

1. $210 \div 30 = 21 \text{ tens} \div 3 \text{ tens} = \square$

2. $480 \div 60 = 48 \text{ tens} \div 6 \text{ tens} = \square$

3. $8,100 \div 90 = \square$

4. $2,800 \div 70 = \square$

Do you UNDERSTAND?

- In Exercise 1, why is $210 \div 30$ the same as $21 \text{ tens} \div 3 \text{ tens}$?
- In the example at the top, if the jet carried 10,000 people in 40 trips, how many people did it carry for each trip?

Independent Practice

In 7 through 22, find each quotient. Use mental math.

7. $560 \div 70 = 56 \text{ tens} \div 7 \text{ tens} = \square$

8. $360 \div 60 = 36 \text{ tens} \div 6 \text{ tens} = \square$

9. $6,000 \div 50 = 600 \text{ tens} \div 5 \text{ tens} = \square$

10. $24,000 \div 60 = 2,400 \text{ tens} \div 6 \text{ tens} = \square$

11. $2,000 \div 20 = \square$

12. $6,300 \div 90 = \square$

13. $240 \div 10 = \square$

14. $21,000 \div \square = 700$

15. $9,000 \div 90 = \square$

16. $72,000 \div \square = 200$

17. $30,000 \div \square = 600$

18. $7,200 \div \square = 80$

19. $56,000 \div \square = 800$

20. $10,000 \div 100 = \square$

21. $25,000 \div 50 = \square$

22. $45,000 \div 90 = \square$

Think of a basic fact to help you solve.

$$18 \div 9 = 2$$

Think about multiples of 10:

$$180 \div 90 = 18 \text{ tens} \div 9 \text{ tens} = 2$$

$$1,800 \div 90 = 180 \text{ tens} \div 9 \text{ tens} = 20$$

$$18,000 \div 90 = 1,800 \text{ tens} \div 9 \text{ tens} = 200$$

The pattern shows us that

$$18,000 \div 90 = 200.$$

So, the jet can hold 200 people during each trip.

You can multiply to check your answer.

$$200 \times 90 = 18,000$$

Problem Solving

For **23** and **24**, use the information at the right.

- 23.** If all the flights were full and all planes carried the same number of passengers, how many people were on each flight?

- 24.** If each flight was stocked with the same number of bottles of water, how many bottles were on each flight?

Data

Total passengers	3,000
Flights per day	20
Bottles of water	6,000

- 25.** There are 12 school campuses in the community. Each campus has a 14-member volleyball team. How many students play volleyball?

- 26.** Helen bowled 5 games. Her scores were 97, 108, 114, 99, and 100. What was the total of her scores?

- 27.** *Think About the Process* Dividing 420 by 60 is the same as

A dividing 42 ones by 6 ones.

B dividing 42 tens by 6 ones.

C dividing 42 tens by 6 tens.

D dividing 42 hundreds by 6 tens.

- 28.** Suppose there are 1,500 pencils in 20 bins. You want to put the same number of pencils in each bin. Which expression shows how to find the number of pencils in each bin?

A $1,500 + 20$

C $1,500 \times 20$

B $1,500 - 20$

D $1,500 \div 20$

- 29.** One dozen eggs is 12 eggs. A farmer harvested 1,260 eggs from the henhouse. Which expression shows how to find how many dozen eggs the farmer harvested?

A $1260 + 12$

C $1260 \div 12$

B $1260 - 12$

D 1260×12

- 30.** It takes 18,000 kg of sand to fill 600 school sandboxes. How much sand will a construction company need to put in each of the 600 sandboxes to get ready for the new school year?



NS 1.0 Students compute with very large and very small numbers, positive and negative numbers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers.

Also **NS 1.1, MR 3.0**

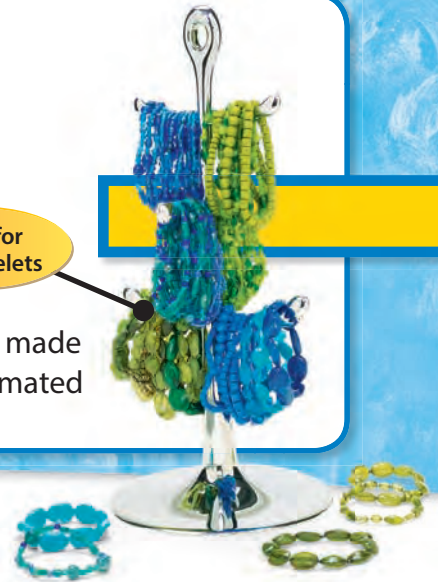
Estimating Quotients

How can you use compatible numbers to estimate quotients?

Betty made \$159 by selling 75 bracelets. Each bracelet costs the same. About how much did each bracelet cost?

Choose an Operation We know the total amount made and the number of bracelets. Divide to find the estimated price of each bracelet.

\$159 for
75 bracelets



Guided Practice*

Do you know HOW?

In **1** through **6**, estimate using compatible numbers.

1. $287 \div 42$
2. $320 \div 11$
3. $208 \div 72$
4. $554 \div 62$
5. $1,220 \div 59$
6. $3,390 \div 42$

Do you UNDERSTAND?

7. **Writing to Explain** If you use rounding to estimate in the example above, can you divide easily? Explain.
8. **Reasonableness** Betty has 425 more bracelets to sell. She wants to store these in plastic bags that hold 20 bracelets each. She estimates she will need about 25 bags. Is she right? Why or why not?

Independent Practice

In **9** through **26**, estimate using compatible numbers.

9. $412 \div 84$
10. $288 \div 37$
11. $2,964 \div 73$
12. $228 \div 19$
13. $1,784 \div 64$
14. $7,620 \div 53$
15. $2,280 \div 12$
16. $485 \div 92$
17. $540 \div 61$
18. $1,710 \div 32$
19. $2,740 \div 67$
20. $4,322 \div 81$
21. $5,700 \div 58$
22. $7,810 \div 44$
23. $6,395 \div 78$
24. $4,877 \div 74$
25. $2,495 \div 48$
26. $6,284 \div 93$

The question asks, "About how much?" So, an estimate is enough.

Use compatible numbers to estimate $159 \div 75$.

Find compatible numbers for 159 and 75.

Think 16 can be divided evenly by 8.

160 and 80 are close to 159 and 75.

So, 160 and 80 are compatible numbers.

Divide.

$$160 \div 80 = 2.$$

So, Betty charged *about* \$2 for each bracelet.

Check for reasonableness:

$$2 \times 80 = 160$$

Problem Solving

27. A high school volleyball team has made it to the state tournament. There are 586 students that want to go, and 32 students can fit on each bus. About how many buses are needed?
28. Each player contributed \$3 for a gift for the head coach. The two assistant coaches each donated \$10. If there were 22 players on the team, how much money did the team raise in all?
29. There are 135 comets that are visible from Earth every 20 years or less. What is an estimate of how many of these comets are seen each year?
30. Leon bought 8 CDs on sale for \$88. The regular price for 8 CDs is \$112. How much did Leon save per CD by buying them on sale?
31. Estimate the product for the following expression.
- $$805 \times 62$$
- A 4,800
B 48,000
C 54,000
D 64,000
32. Which property does the following equation illustrate?
- $$2 + (11 + 19) = (2 + 11) + 19$$
- A Commutative Property of Addition
B Associative Property of Addition
C Identity Property of Addition
D Commutative Property of Multiplication
33. Donald bought a clock radio. The radio weighs 18 ounces. Donald paid \$12 less than the normal sales price. If the normal sales price was \$38, how much did Donald spend on the radio?
34. **Writing to Explain** Autumn needs to estimate the quotient $817 \div 91$. Explain how Autumn can use compatible numbers to make a reasonable estimate.



NS 1.0 Students compute with very large and very small numbers, positive integers, decimals, and fractions, and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers. Also **MR 2.3**

Connecting Models and Symbols

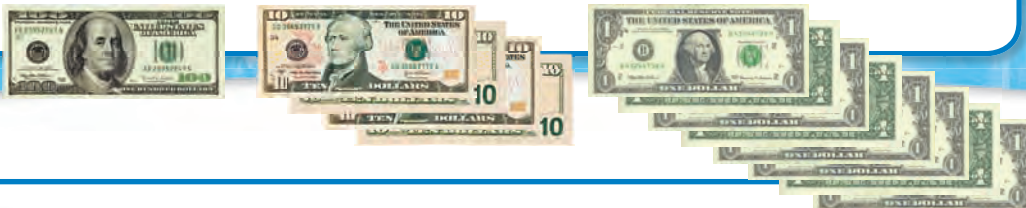
Hands-On
play money



How can you model division?

Abbott Middle School raised \$148 selling spaghetti at the school's fund-raiser dinner. How can the principal divide the money equally among 4 school projects?

Choose an Operation Divide since you are sharing.



Another Example How can you record division?

Suppose 4 people needed to share \$148.

What You Think

The \$100 bill needs to be shared. Exchange the \$100 bill for ten \$10 bills. There are now 14 \$10 bills.

Each person gets three \$10 bills. ($4 \times 3 = 12$).

Two \$10 bills are left to share. Exchange the \$10 bills for 20 \$1 bills.

That gives 28 \$1 bills to be divided into four groups.

Each person gets seven \$1 bills. ($4 \times 7 = 28$).

After each person gets seven \$1 bills, there is no money left to share.

What You Write

$$\begin{array}{r} 3 \\ 4 \overline{)148} \\ - 12 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 37 \\ 4 \overline{)148} \\ - 12 \\ \hline 28 \\ - 28 \\ \hline 0 \end{array}$$

Each person gets \$37.

Explain It

1. Explain how you can exchange bills to divide four \$10 bills equally among 5 people.
2. Suppose Abbott Middle School raised \$75 more. In all, how much would each of the four projects receive?

Exchange the \$100 bill for ten \$10 bills. There are now 14 \$10 bills. Share the \$10 bills. Each project gets three \$10 bills. Two \$10 bills are left.



Exchange the two remaining \$10 bills for 20 \$1 bills. This gives 28 \$1 bills.



Each project gets a total of \$37.

Guided Practice*

Do you know HOW?

In 1 through 4, use models to help you divide.

1. $3 \overline{)69}$
2. $7 \overline{)490}$
3. $9 \overline{)225}$
4. $3 \overline{)186}$

Do you UNDERSTAND?

5. **Writing to Explain** In the example above, why do you have to exchange the two remaining \$10 bills?
6. If 4 people divide \$244 equally, how much will each person get?

Independent Practice

Leveled Practice In 7, use play money or draw diagrams of the bills shown at the right to symbolize division. Copy and complete the calculation as you answer the questions below.

7. Six people need to share \$576 equally.
 - a All \$100 bills are replaced with \$10 bills. How many \$10 bills are there altogether?
 - b How many \$10 bills will each person get?
 - c How many \$10 bills are left?
 - d Replace the remaining \$10 bills with \$1 bills. How many \$1 bills are left in all to divide among 6 people?
 - e What is the total amount each person gets?



Independent Practice

In 8 through 17, copy and complete. You may use play money to help you divide.

8. $5\overline{)355}$ 9. $7\overline{)693}$ 10. $4\overline{)364}$ 11. $6\overline{)492}$
12. 484 divided by 4 13. 672 divided by 6
14. 312 divided by 2 15. 765 divided by 5
16. 385 divided by 7 17. 759 divided by 3

Problem Solving

18. Twenty bags of dog food were donated to the animal shelter. The total cost of the dog food, including \$5.95 tax, was \$145.95. How much did one bag of dog food cost before taxes?
19. Paulo helped his grandmother with her garden for five days after school. He worked for two hours each day. Paulo's grandmother gave him \$75. How much money did Paulo earn each day?
20. **Number Sense** Nick and 3 friends unloaded 224 folding chairs for the community theater. Each person unloaded the same number of chairs. How many chairs did Nick unload?
21. **Writing to Explain** Explain how division facts and patterns can help you find $20,000 \div 5$.
22. The Stanton Ferry transports a maximum of 756 people to Green Island in 4 trips. How many people can the ferry transport in 1 trip?
- A 151 C 189
B 164 D 199
23. The Napoleon Bonaparte Broward Bridge is 10,646 feet long. The Sunshine Sky Bridge is 29,040 feet long. Which bridge is shorter and by how much?
24. **Writing to Explain** Why is 3.892 greater than 3.289?
25. **Think About the Process** The art museum sold 1,770 tickets to the modern art exhibit on Sunday. Each ticket cost \$12. The ticket holders were divided into five groups to organize the viewing for that day. Which expression tells how to find the number of people in each group?
- A $1,770 \div \$12 + 5$
B $1,770 \div 5 + \$12$
C $1,770 \div \$12$
D $1,770 \div 5$
26. Kirstin is starting a swimming club. She is the only member the first month. She plans to have each member find 2 new members each month. How many members will the club have at the end of 4 months?



Find the product. Estimate to check if the answer is reasonable.

$$\begin{array}{r} 1. \quad 692 \\ \times 414 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 365 \\ \times 212 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 405 \\ \times 326 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 444 \\ \times 222 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 732 \\ \times 551 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 605 \\ \times 706 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 117 \\ \times 515 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 275 \\ \times 625 \\ \hline \end{array}$$

Find the quotient.

$$9. \quad 720 \div 9$$

$$10. \quad 3,200 \div 8$$

$$11. \quad 30,000 \div 50$$

$$12. \quad 48,000 \div 6$$

$$13. \quad 54,000 \div 90$$

$$14. \quad 21,000 \div 70$$

$$15. \quad 30,000 \div 5$$

$$16. \quad 2,700 \div 30$$

Error Search Find each answer that is not correct. Write it correctly and explain the error.

$$17. \quad 42,000 \div 70 = 6,000$$

$$18. \quad \begin{array}{r} 398 \\ \times 602 \\ \hline 24,676 \end{array}$$

$$19. \quad 180 \div 6 = 20$$

$$20. \quad \begin{array}{r} 883 \\ \times 445 \\ \hline 392,935 \end{array}$$

Number Sense

Estimating and Reasoning Write whether each statement is true or false. Explain your reasoning.

21. The quotient of $388 \div 8$ is closer to 50 than 40.

22. The sum of $4.95 + 3.68$ is 0.05 more than 8.68.

23. The product of 5 and 3,003 is 15 more than 15,000.

24. The product of 28 and 485 is greater than 15,000.

25. The quotient of $4,479 \div 61$ is closer to 80 than 70.

26. The product of 7 and 409 is greater than the product of 4 and 709.

27. The quotient of $42,000 \div 6$ is greater than 700 and less than 70,000.

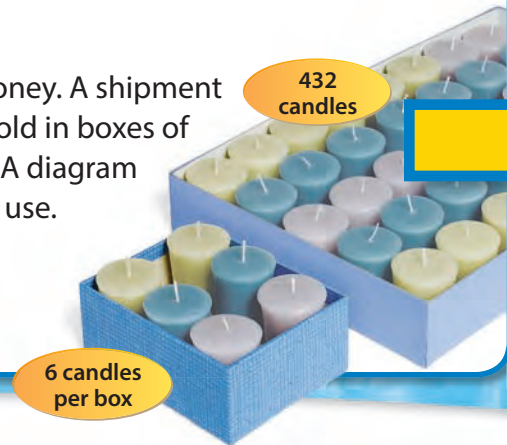
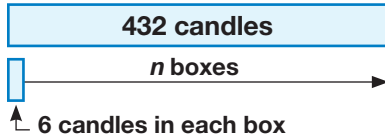


NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.

Dividing by 1-Digit Divisors

Why use division?

Students are selling candles to raise money. A shipment arrived yesterday. The candles will be sold in boxes of 6 each. How many boxes can be filled? A diagram can help you decide what operation to use.



Other Examples

2-digit quotient with remainder

Find $380 \div 6$.

$$\begin{array}{r} 6 \\ 6 \overline{)380} \\ - 36 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 63 \text{ R}2 \\ 6 \overline{)380} \\ - 36 \downarrow \\ \hline 20 \\ - 18 \\ \hline 2 \end{array}$$



Tip 380 is the dividend, 6 is the divisor, 63 is the quotient, and 2 is the remainder.

3-digit quotient with remainder

Find $547 \div 4$.

$$\begin{array}{r} 1 \\ 4 \overline{)547} \\ - 4 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 13 \\ 4 \overline{)547} \\ - 4 \downarrow \\ \hline 14 \\ - 12 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 136 \text{ R}3 \\ 4 \overline{)547} \\ - 4 \\ \hline 14 \\ - 12 \downarrow \\ \hline 27 \\ - 24 \\ \hline 3 \end{array}$$

Explain It

1. Name the quotient, divisor, remainder, and dividend in these two examples.
2. Why did the second example have a 3-digit quotient?

Step 1Find $432 \div 6$.

Estimate. Decide where to place the first digit in the quotient.

Use compatible numbers.

$420 \div 6 = 70$

The first digit is in the tens place.

Step 2

Divide the tens.
Multiply and subtract.

$$\begin{array}{r} 7 \\ 6 \overline{)432} \\ - 42 \\ \hline 1 \end{array}$$

Divide. $43 \div 6 = 7$ Multiply. $7 \times 6 = 42$ Subtract. $43 - 42 = 1$ Compare. $1 < 6$ **Step 3**

Bring down the ones.
Divide the ones. Multiply and subtract.

$$\begin{array}{r} 72 \\ 6 \overline{)432} \\ - 42 \downarrow \\ \hline 12 \\ - 12 \\ \hline 0 \end{array}$$

Divide. $12 \div 6 = 2$ Multiply. $2 \times 6 = 12$ Subtract. $12 - 12 = 0$ Compare. $0 < 6$

There can be 72 boxes filled with candles.

Guided Practice***Do you know HOW?**

In **1** through **6**, find each quotient.

1. $9 \overline{)270}$

2. $6 \overline{)684}$

3. $3 \overline{)65}$

4. $5 \overline{)339}$

5. $5 \overline{)564}$

6. $4 \overline{)724}$

Do you UNDERSTAND?

7. **Writing to Explain** How can estimating with compatible numbers help you find the quotient?
8. In the first example, find the quotient if the total number of candles is 561.

Independent Practice

In **9** through **12**, use compatible numbers to decide where to place the first digit of the quotient.

9. $5 \overline{)762}$

10. $3 \overline{)289}$

11. $8 \overline{)637}$

12. $3 \overline{)567}$

In **13** through **32**, copy and complete the calculation.

13. $8 \overline{)616}$

14. $6 \overline{)486}$

15. $4 \overline{)448}$

16. $9 \overline{)828}$

17. $7 \overline{)644}$

18. $2 \overline{)131}$

19. $9 \overline{)836}$

20. $5 \overline{)413}$

21. $5 \overline{)4,673}$

22. $2 \overline{)3,182}$

23. $5 \overline{)469}$

24. $6 \overline{)3,105}$

25. $2 \overline{)995}$

26. $9 \overline{)73}$

27. $5 \overline{)4,626}$

28. $6 \overline{)1,884}$

29. $3 \overline{)86}$

30. $2 \overline{)345}$

31. $9 \overline{)7,645}$

32. $5 \overline{)942}$



Problem Solving

33. Writing to Explain How can you tell, before you divide 387 by 4, that the first digit of the quotient is in the tens place?

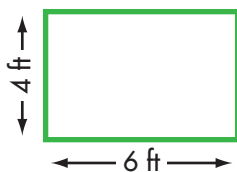
35. Think About the Process A team of 10 people in the Netherlands rolled a 140-lb barrel a distance of 164 miles in 24 hours. Each person rolled the same distance. Which of the following shows how to determine how many miles each person rolled the barrel?

- A** $164 \div 24$ **C** $140 \div 24$
B $164 \div 10$ **D** $140 \div 10$

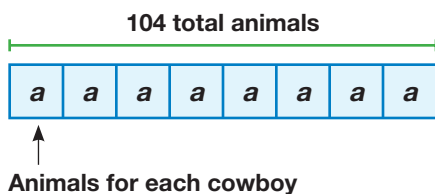
38. The High Sierra Trail at Mt. Whitney is 49 miles long each way. Park rangers report that to walk the trail one way takes hikers 6 days. About how many miles must the hikers walk each day to finish all 49 miles in 6 days?

- A** 6 miles **C** 10 miles
B 8 miles **D** 12 miles

41. Geometry What is the perimeter of the rectangle in inches? (Hint: 1 ft = 12 in.)



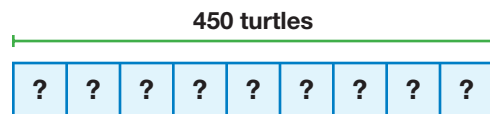
43. Strategy Focus Suppose 8 cowboys drove a herd of 104 cattle along the Warner Mountains near Cedarville, California. How many animals was each cowboy responsible for? Write an equation, then solve. Let a = the number of animals for each cowboy.



34. Writing to Explain Why is the following incorrect? $296 \div 6 = 48$ R8. Write your answer before you complete the calculation.

36. Ray walked for 9 hours to raise money for his favorite charity. He raised \$225. How much money did he raise for each hour he walked?

37. For 9 years, scientists tagged 450 turtles at Turtle Island. How many turtles did they tag each year?



39. Algebra What is the value of c in the equation $c \times 3 = 324$?

- A** 18 **C** 180
B 108 **D** 1,080

40. Algebra Find the value of n .

$$3 \times 7 = n \times 3$$

42. Estimation There are 7 days in a week. About how many weeks are there for the amounts of time below?

- a** 621 days
b 2,423 days

Algebra Connections

Simplifying Numerical Expressions

In order to simplify numerical expressions, you must follow the order of operations.

- Complete the operations inside the parentheses.
- Multiply and/or divide in order from left to right.
- Add and/or subtract in order from left to right.

Example:

Simplify $50 - (9 \times 3)$.

Start with the operation inside the parentheses. What is 9×3 ?

$$9 \times 3 = 27$$

Then subtract.

$$50 - 27 = 23$$

So, $50 - (9 \times 3) = 23$.

Simplify. Follow the order of operations.

1. $4 + 2 \times 9$

2. $16 + 8 \div 2$

3. $25 + (3 \times 6) - 5$

4. $8 \times 6 + 9$

5. $10 + 27 \div 3$

6. $(6 + 3) \times 5$

7. $(5 \times 2) + (10 \div 2)$

8. $5 \times 7 \times (6 - 3)$

9. $(12 - 3) \times (3 + 4)$

10. $35 + 5 \div 5 - 2$

11. $20 \times 2 + 3 \times (8 + 2)$

12. $(10 + 7) \times 3 - 4 \times (2 + 5)$

13. $3 \times 3 \div 3 + 6 - 3$

14. $(5 + 63) - 4 \times (12 \div 4)$

Insert parentheses to make each statement true.

15. $11 - 6 - 1 = 6$

16. $10 + 2 \times 4 + 1 = 60$

17. $30 - 4 \times 2 + 5 = 2$

18. $64 \div 2 \times 4 \div 2 = 4$

19. **Write a Problem** Write a real-world problem that you could solve by simplifying the expression $50 - (2 \times 9)$.



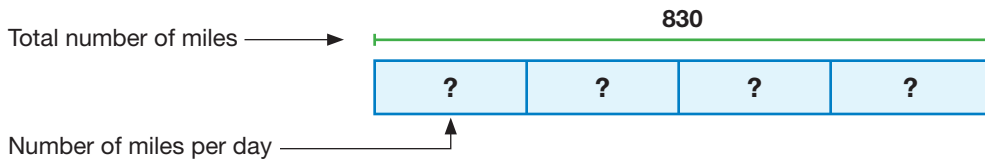
NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.

Zeros in the Quotient

When do you write a zero in the quotient?

On vacation the McQueen family drove a total of 830 miles in four days. What is the average number of miles they drove each day?

Choose an Operation Divide to find how many miles per day.



Other Examples

Find $2,240 \div 4$.

Step 1

Estimate. Use compatible numbers. Decide where to place the first digit in the quotient.

$$2,000 \div 4 = 500$$

The first digit in the quotient is in the hundreds place.

Step 2

Divide the hundreds.

$$\begin{array}{r} 5 \\ 4 \overline{)2,240} \\ \underline{-20} \\ 2 \end{array} \quad \begin{array}{l} 22 \div 4 = 5 \\ 5 \times 4 = 20 \\ 22 - 20 = 2 \\ 2 < 4 \end{array}$$

Step 3

Bring down the tens. Divide the tens. Multiply and subtract.

$$\begin{array}{r} 56 \\ 4 \overline{)2,240} \\ \underline{-20} \\ 24 \\ \underline{-24} \\ 0 \end{array} \quad \begin{array}{l} 24 \div 4 = 6 \\ 6 \times 4 = 24 \\ 24 - 24 = 0 \\ 0 < 4 \end{array}$$

Step 4

Bring down the ones. Divide the ones. Multiply and subtract.

$$\begin{array}{r} 560 \\ 4 \overline{)2,240} \\ \underline{-20} \\ 24 \\ \underline{-24} \\ 00 \\ \underline{0} \\ 0 \end{array}$$

There are 0 ones and $0 < 4$. Put a 0 in the quotient in the ones place. $2,240 \div 4 = 560$.

Guided Practice*

Do you know HOW?

For 1 through 4, find each quotient. Check your answers by multiplying.

1. $9 \overline{)972}$

2. $7 \overline{)714}$

3. $5 \overline{)453}$

4. $2 \overline{)1,941}$

Do you UNDERSTAND?

5. Why is the zero placed in the tens place of the quotient in the example at the top, but in the ones place in Another Example?

Step 1

Find $830 \div 4$.

Estimate first. Use compatible numbers. $800 \div 4 = 200$

So, the first digit in the quotient is in the hundreds place. Divide the hundreds.

$$\begin{array}{r} 2 \\ 4 \overline{)830} \\ - 8 \\ \hline 0 \end{array}$$

Divide. $8 \div 4 = 2$
 Multiply. $2 \times 4 = 8$
 Subtract. $8 - 8 = 0$
 Compare. $0 < 4$

Step 2

$$\begin{array}{r} 20 \\ 4 \overline{)830} \\ - 8 \downarrow \\ \hline 03 \end{array}$$

You cannot divide tens. Write 0 in the tens place.

Step 3

$$\begin{array}{r} 207 \text{ R}2 \\ 4 \overline{)830} \\ - 8 \downarrow \\ \hline 030 \\ - 28 \\ \hline 2 \end{array}$$

$30 \div 4 \approx 7$
 $7 \times 4 = 28$
 $30 - 28 = 2$
 $2 < 4$

The McQueens drove about 207 miles each day.

Independent Practice

For **6** through **17**, find each quotient. Check your answers by multiplying.

6. $2 \overline{)880}$

7. $5 \overline{)540}$

8. $6 \overline{)8,340}$

9. $3 \overline{)3,230}$

10. $7 \overline{)707}$

11. $4 \overline{)829}$

12. $2 \overline{)6,080}$

13. $9 \overline{)2,781}$

14. $3 \overline{)620}$

15. $5 \overline{)1,535}$

16. $7 \overline{)14,206}$

17. $4 \overline{)20,024}$

Problem Solving

- 18. Writing to Explain** Is $513 \div 5$ a little less than 10, a little more than 10, a little less than 100, or a little more than 100? How do you know?
- 19.** Miguel earned \$505 doing chores for \$5 per hour. How many hours did Miguel work?
A 11 **B** 101 **C** 110 **D** 111
- 20. Reasoning** Which compatible numbers would you use for $327 \div 6$? Explain your reasoning.
- 21.** David runs 9 miles per day. Last year, he ran 972 miles. How many days did it take him to run 972 miles?
- 22. Writing to Explain** Javier said $1,621 \div 4$ is 405 R1. Josiah disagreed. Who is correct? Explain Javier's mistake, if any.
- 23. Reasoning** Why is it helpful in using estimation to solve a division problem at the beginning?
- 24. Think About the Process** Is the process of solving $1,760,008 \div 8$ the same as the process in the example? Explain.
- 25.** The world's longest cartoon strip has 242 panels. It was drawn by 35 artists in about 8 hours. About how many panels were drawn in one hour?
A 15 **B** 20 **C** 30 **D** 45



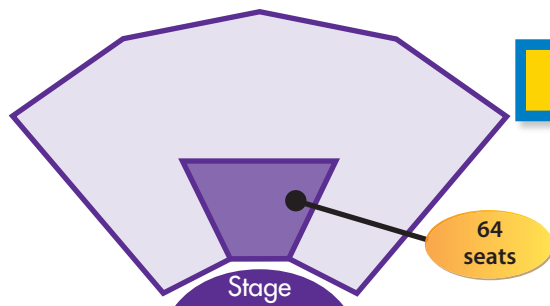
NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.

Dividing by 2-Digit Divisors

What are the steps for dividing by 2-digit numbers?

A theater sold 428 tickets for a show. A section in this theater has 64 seats. How many sections must there be to seat all the ticket holders?

Choose an Operation Divide to find the total number of sections.



Another Example How can estimation help you find $330 \div 42$?

Step 1

Estimate first.

$330 \div 42$ is about $320 \div 40$, or 8.



*Think of
32 tens \div 4 tens = 8.*

Step 2

Divide the ones. Multiply and subtract.

8 groups of 42 or $8 \times 42 = 336$.

Since $336 > 330$, my estimate is too high.

$$\begin{array}{r} 8 \\ 42 \overline{)330} \\ - 336 \\ \hline \text{Oops!} \end{array}$$

Step 3

Revise your estimate. Since 8 was too high, try 7 and divide.

7 groups of 42 or $7 \times 42 = 294$

$$330 - 294 = 36$$

$36 < 42$, so I do not have to divide again.

$$\begin{array}{r} 7 \\ 42 \overline{)330} \\ - 294 \\ \hline 36 \end{array}$$

Answer: 7 R36

Step 4

Check your work.

$$\begin{aligned} 7 \times 42 &= 294 \\ 294 + 36 &= 330 \end{aligned}$$

Explain It

1. In Step 1, how did the estimate tell you to start dividing ones?
2. In Step 2, how did you know that your first estimate of 8 was too high?

Step 1

Estimate to help decide where to place the first digit in the quotient.

$428 \div 64$ is about
 $420 \div 70$, or 6.

Start dividing ones.

Step 2

Divide the ones. Multiply and subtract.

$$\begin{array}{r} 6 \text{ R}44 \\ 64 \overline{)428} \\ \underline{-384} \\ 44 \end{array}$$

$$428 \div 64 = 6 \text{ R}44$$

Step 3

Check:

$$\begin{array}{r} 64 \\ \times 6 \\ \hline 384 \\ + 44 \\ \hline 428 \end{array}$$

So, the theater must have 7 sections.

Guided Practice***Do you know HOW?**

Copy and complete.

$$1. \begin{array}{r} \text{ R} \\ 12 \overline{)115} \\ \underline{-} \\ \end{array}$$

$$2. \begin{array}{r} \text{ R} \\ 31 \overline{)243} \\ \underline{-} \\ \end{array}$$

Do you UNDERSTAND?

- Can the remainder in either example be greater than the divisor? Why or why not?
- In the example above, if the theater had sold 612 tickets, how many sections must it have?

Independent Practice

Leveled Practice Copy and complete.

$$5. \begin{array}{r} \text{ R}2 \\ 38 \overline{)325} \\ \underline{-} \\ \end{array}$$

$$6. \begin{array}{r} 7 \text{ R}9 \\ 52 \overline{)403} \\ \underline{-} \\ \end{array}$$

$$7. \begin{array}{r} \text{ R}7 \\ 74 \overline{)693} \\ \underline{-} \\ \end{array}$$

$$8. \begin{array}{r} \text{ R} \\ 33 \overline{)301} \\ \underline{-} \\ \end{array}$$

In **9** through **24**, divide.

$$9. 57 \overline{)550}$$

$$10. 29 \overline{)254}$$

$$11. 46 \overline{)260}$$

$$12. 56 \overline{)528}$$

$$13. 51 \overline{)293}$$

$$14. 19 \overline{)119}$$

$$15. 91 \overline{)628}$$

$$16. 40 \overline{)180}$$

$$17. 396 \div 42$$

$$18. 275 \div 38$$

$$19. 179 \div 22$$

$$20. 345 \div 85$$

$$21. 48 \overline{)4,407}$$

$$22. 91 \overline{)5,543}$$

$$23. 75 \overline{)2,969}$$

$$24. 82 \overline{)3,616}$$

*For another example, see Set E on page 109.

25. Use the table at the right to answer the following questions.

- a What is the total capacity for all four exhibits at the History Museum?
- b How many class groups of 24 could view the showing at the Interactive Exhibit at the same time?

History Museum Capacity		
Governor Exhibit	:	68
Landmark Exhibit	:	95
Early 1900s Exhibit	:	85
Interactive Exhibit	:	260

26. Chen’s band put on a concert at school. There were 702 people in the audience. Each ticket cost \$8. The audience was seated in 13 sections. If each section had the same number of people, how many people were in each section?

28. Mr. Nolan changes the oil in his car every 4,000 miles. He uses 3 quarts of oil each time. How many quarts of oil will he have used after 12,000 miles?

30. Twenty members of the photography club took 559 pictures. If they use memory cards that hold 85 pictures per card, how many cards will they use?

32. **Writing to Explain** Explain how you know the answer to the problem shown below has an error.

$$\begin{array}{r} 8 \text{ R}24 \\ 16 \overline{)152} \\ \underline{- 128} \\ 24 \end{array}$$

34. **Writing to Explain** Explain why 0.2 and 0.02 are NOT equivalent.

27. Mrs. Dugan collects antiques. She bought 7 antique chairs for which she paid a total of \$1,050. Each chair was made with a different type of wood. If each chair cost the same amount, how much did each chair cost?

29. If you estimate 125×22 by rounding to the nearest ten, will you get an overestimate or an underestimate?

31. The annual music festival featured different posters for sale. The sale of jazz band posters brought in \$1,312. If each poster was \$16, how many were sold?

33. Rachel wanted to get 8 hours of sleep before a test. She went to bed at 9:00 P.M. and woke up at 6:00 A.M. How many more hours of sleep did Rachel get than the 8 hours she wanted?

- A 3 more hours C 1 more hour
- B 9 more hours D No more hours

35. In a large restaurant, there are 9 times as many chairs as tables. The restaurant is famous for its very spicy chili. If the restaurant has 342 chairs, how many tables are in the restaurant?

Mixed Problem Solving

1. Before the Gold Rush of 1849, most people traveling to the west were headed to California, Oregon, or Utah. Between 1841 and 1848, about 11,000 people had migrated to Oregon. This was about four times as many people as had migrated to California in the same period. About how many people had migrated to California during that time?

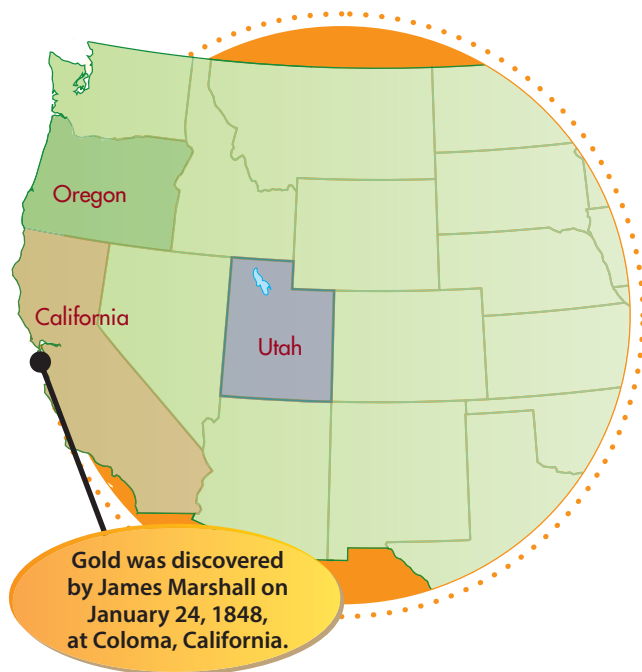
2. During the peak Gold Rush Years of 1849–1854, about six times as many people traveled to California as traveled to Oregon. If about 35,000 traveled to Oregon in that time, about how many people traveled to California?

3. Before the discovery of gold in California in 1848, California had a population of about 150,000 Native Americans plus about 13,000 people other than Native Americans. By 1860, California's population had grown to about 380,000. How much did the population increase from 1848 to 1860?

5. From April 1849 to April 1850, about 62,000 gold seekers arrived on ships at the port in San Francisco. From January, 1849, through December, 1849, 20,000 had migrated overland on various southern routes. About how many gold seekers traveled to California by ship or overland by southern routes from January, 1849, through April, 1850?

6. **Strategy Focus** Solve using the strategy Act it Out.

How many different teams of 3 can be chosen from 4 people?



4. Even though James Marshall discovered gold, he never “struck it rich” and spent his last years in poverty. He died in 1885. How many years passed after he discovered gold until he died?



NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.

More Dividing by 2-Digit Divisors

How can you divide larger numbers?

So far, 467 tortillas have been made. These tortillas will be placed in packages of 15. How many complete packages will be filled?

Choose an Operation Divide to find the number of packages of tortillas.



15 per package

Another Example Find $2,413 \div 21$.

In Lesson 4–6, you learned how to divide by 2-digit divisors. You will use the same procedure to divide greater numbers by 2-digit divisors.

Step 1

Estimate. Decide where to place the first digit.

Use compatible numbers.

$$2,400 \div 24 = 100$$

Start dividing hundreds.

Step 2

Divide the hundreds. Multiply and subtract. Continue the process.

$$\begin{array}{r} 114 \text{ R}19 \\ 21 \overline{)2,413} \\ \underline{- 21} \\ 31 \\ \underline{- 21} \\ 103 \\ \underline{- 84} \\ 19 \end{array}$$

Step 3

Check.

$$\begin{array}{r} 114 \\ \times 21 \\ \hline 114 \\ 2280 \\ \hline 2,394 \\ + 19 \\ \hline 2,413 \end{array}$$

Explain It

1. How do you know that the first digit goes in the hundreds place?
2. Complete the problem above if you substitute 2,155 for 2,413.
3. If you are asked to find $6,319 \div 59$, how do you know the quotient is greater than 100 before you actually divide?

Step 1

Estimate to help decide where to place the first digit in the quotient.

Use compatible numbers.

$$450 \div 15 = 30$$

Start dividing tens.

Step 2

Divide the tens. Multiply and subtract. Continue the process.

$$\begin{array}{r} 31 \text{ R}2 \\ 15 \overline{)467} \\ \underline{-45} \\ 17 \\ \underline{-15} \\ 2 \end{array}$$

Step 3

Check:

$$\begin{array}{r} 31 \\ \times 15 \\ \hline 465 \\ + 2 \\ \hline 467 \end{array}$$

So far, 31 packages of tortillas will be filled.

Guided Practice***Do you know HOW?**

Copy and complete.

$$1. \begin{array}{r} \text{R} \\ 47 \overline{)985} \\ \underline{-} \\ \end{array}$$

$$2. \begin{array}{r} \text{R} \\ 33 \overline{)678} \\ \underline{-} \\ \end{array}$$

For 3 and 4, divide.

$$3. 16 \overline{)298}$$

$$4. 23 \overline{)292}$$

Do you UNDERSTAND?

- Writing to Explain** In the problem above, why will 31 packages be filled instead of 32?
- How many packages will 627 tortillas fill?
- How do you decide where to place the first digit in the quotient for Exercises 1–4?

Independent Practice

Leveled Practice Copy and complete.

$$8. \begin{array}{r} \text{R} \\ 36 \overline{)584} \\ \underline{-} \\ \\ \underline{-1} \\ 8 \end{array}$$

$$9. \begin{array}{r} \text{R} \\ 45 \overline{)981} \\ \underline{-0} \\ \\ \underline{-1} \\ \end{array}$$

$$10. \begin{array}{r} \text{R} \\ 56 \overline{)674} \\ \underline{-} \\ \\ \underline{-} \\ \end{array}$$

In 11 through 22, divide.

$$11. 76 \overline{)864}$$

$$12. 23 \overline{)279}$$

$$13. 63 \overline{)710}$$

$$14. 18 \overline{)638}$$

$$15. 48 \overline{)582}$$

$$16. 26 \overline{)784}$$

$$17. 13 \overline{)989}$$

$$18. 72 \overline{)2,532}$$

$$19. 76 \overline{)8,641}$$

$$20. 23 \overline{)2,799}$$

$$21. 63 \overline{)7,109}$$

$$22. 38 \overline{)5,821}$$

*For another example, see Set E on page 109.

- 23. Writing to Explain** If you are asked to find $621 \div 59$, how do you know the quotient will be greater than 10 before you actually divide?
- 24.** Julita bought a sandwich for \$3.50 and a glass of juice for \$1.75. The tax was \$0.42. She paid with a \$10 bill. How much change did she get?
- 25.** An outdoor concert company is putting on 12 concerts this summer. Each concert is sold out. The company sold a total of 972 seats. How many people will attend each performance?
- A** 8 **B** 79 **C** 80 **D** 81
- 26.** Julio spends about $\frac{1}{2}$ hour reading every night. Julio owns 8 science fiction books, 12 mystery books, and 7 history books. He wants to add enough books to his collection to have 40 books. How many more books does he need?
- 27.** There are 120 minutes in 2 hours. How many minutes are there in 15 hours?
- 28.** What compatible numbers can you use to estimate $803 \div 86$?
- 29.** One of the Thorny Devil lizard's favorite foods is ants. It can eat up to 45 ants per minute. How long would it take it to eat 540 ants?
- A** 9 minutes
B 10 minutes
C 12 minutes
D 15 minutes
- 30. Number Sense** Decide if each statement is true or false. Explain.
- a** $710 \div 20$ is greater than 30.
b $821 \div 40$ is less than 20.
c $300 \div 15$ is exactly 20.
- 31.** Braedy had \$5 when she left the county fair. She spent \$11 on her ticket, and she bought lunch for \$6. After lunch, she spent \$17 on games and rides. How much money did Braedy bring to the county fair?





Find the quotient. Estimate to check if the answer is reasonable.

1. $96 \div 4$

2. $77 \div 8$

3. $9 \overline{)475}$

4. $805 \div 2$

5. $3 \overline{)1,804}$

6. $6 \overline{)87}$

7. $95 \div 32$

8. $17 \overline{)35}$

9. $299 \div 74$

10. $74 \overline{)614}$

11. $608 \div 67$

12. $23 \overline{)281}$

13. $24 \overline{)984}$

14. $847 \div 84$

15. $56 \overline{)702}$

16. $600 \div 51$

17. $728 \div 51$

Find the difference. Estimate to check if the answer is reasonable.

18.
$$\begin{array}{r} 9,000 \\ - 486 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 8,030 \\ - 6,090 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 436 \\ - 85 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 6,821 \\ - 5,932 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 8,005 \\ - 3,213 \\ \hline \end{array}$$

Error Search Find each quotient that is not correct.

Write it correctly and explain the error.

23. $47 \div 3 = 15 \text{ R}2$

24. $6 \overline{)606} = 11$

25. $629 \div 2 = 314 \text{ R}1$

26. $89 \div 31 = 2 \text{ R}27$

27. $51 \overline{)154} = 3$

28. $879 \div 27 = 31 \text{ R}42$

Number Sense

Estimating and Reasoning Write whether each statement is true or false. Explain your reasoning.

29. The quotient of $7,528 \div 9$ is greater than 800.

30. The product of 19 and 487 is closer to 10,000 than 8,000.

31. The sum of 73,342 and 27,120 is less than 100,000.

32. The quotient of $759 \div 25$ has a remainder that is less than 25.

33. The difference of $57.6 - 12.3$ is 0.3 greater than 45.6.

34. The sum of 4.143 and 5.709 is between 9 and 11.

Step 1

Estimate. Decide where to place the first digit.

$$12,000 \div 40 = 300$$

The first digit in the quotient is in the hundreds place.

Start dividing hundreds.

Step 2

$$\begin{array}{r} 3 \\ 43 \overline{)11,094} \\ - 129 \\ \hline \end{array}$$

Oops! $3 \times 43 = 129$

The estimate is too high. Try 2.

$$\begin{array}{r} 2 \\ 43 \overline{)11,094} \\ - 86 \\ \hline 24 \end{array}$$

$2 \times 43 = 86$

Step 3

Bring down the tens. Continue dividing.

$$\begin{array}{r} 25 \\ 43 \overline{)11,094} \\ - 86 \\ \hline 249 \\ - 215 \\ \hline 34 \end{array}$$

$5 \times 43 = 215$

Step 4

Bring down the ones.

$$\begin{array}{r} 258 \\ 43 \overline{)11,094} \\ - 86 \\ \hline 249 \\ - 215 \\ \hline 344 \\ - 344 \\ \hline 0 \end{array}$$

$8 \times 43 = 344$

Each computer costs \$258.

Problem Solving

19. The city of Santa Barbara held a chess tournament. Shown are the fees charged for the tournament.

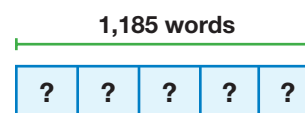
Chess Tournament	
Student entry fee	\$15
Adult entry fee	\$18
Reserve a chess board	\$12

- a The total student entry fees paid were \$3,105. How many students participated?
- b There are about ten times as many students as adults registered for the tournament. About how many adults are registered?
23. There are 1,185 possible words that can be used for a spelling bee. This number is 15 times more than would be used in the contest. How many words will be used in the contest?
- A 7.9 C 709
B 79 D 790

20. The Arches National Park in Utah covers over 73,000 acres and has 2,000 stone arches. A 40-mile round-trip paved road in the park takes visitors past most of the arches. If a visitor drove the entire paved road, about how many arches would he or she see per mile?

- A 20 C 50
B 26 D 75

21. **Number Sense** Give three factors whose product is about 10,000.
22. There are 12 inches in 1 foot. How many inches are there in 120 feet?
24. Tabitha's class is making flash cards to study the 1,185 words for the spelling bee. There are 5 teams in her class. How many flash cards will each team need to make?





AF 1.1 Grade 6 Write and solve one-Step linear equations in one variable.
Also **MR 2.3**

Problem Solving

Draw a Picture and Write an Equation

The students in Bryan's class sold tickets to the annual school band concert. How many tickets did the class sell?

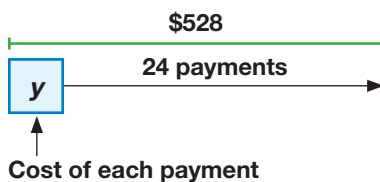
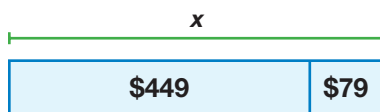


Total ticket sales
\$568

Another Example

Marcella bought a new computer for \$449 and a printer for \$79. The store allows her to pay the total cost in 24 equal monthly installments. How much will her monthly payments be?

Think The total cost of the computer and printer is unknown. Marcella will pay the total cost in 24 equal monthly installments.

Draw a Picture

Write an Equation

Let x = the total cost of the computer and printer.

$$\begin{aligned} \$449 + \$79 &= x \\ x &= \$528 \end{aligned}$$

$$\begin{array}{r} 11 \\ 449 \\ + 79 \\ \hline 528 \end{array}$$

Now, divide the total cost by the number of monthly payments.

Let y = the monthly payment.

$$\begin{aligned} \$528 \div 24 &= y \\ y &= \$22 \end{aligned}$$

$$\begin{array}{r} 22 \\ 24 \overline{)528} \\ - 48 \\ \hline 48 \\ - 48 \\ \hline 0 \end{array}$$

The monthly payments will be \$22.

Explain It

1. Why did you need to draw two pictures?
2. How can you check your answer?

Read and Understand

What do I know?

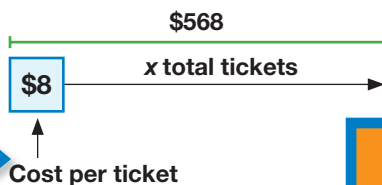
Each ticket cost \$8. Total ticket sales were \$568.

What am I asked to find?

The number of tickets sold by the class.

Plan and Solve

Draw a Picture



Write an Equation

Let x = the number of tickets the class sold.

$$\text{Divide: } \$568 \div \$8 = x$$

$$\$568 \div \$8 = 71$$

The class sold 71 tickets.

$$\begin{array}{r} 71 \\ 8 \overline{)568} \\ \underline{-56} \\ 8 \\ \underline{-8} \\ 0 \end{array}$$

Look Back and Check

Check the solution by multiplying.

Each ticket cost \$8. There were 71 tickets sold.

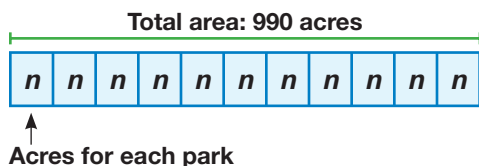
$$\begin{array}{r} 71 \\ \times 8 \\ \hline 568 \end{array}$$

Guided Practice*

Do you know HOW?

Write an equation and solve.

1. A state in the U.S. has 990 acres set aside for 11 parks. If each park has the same number of acres, how many acres does each park have?



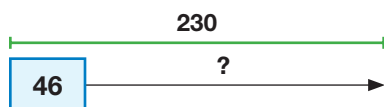
Do you UNDERSTAND?

2. How can you check your answer for Problem 1? Show your work.
3. **Write a Problem** Write a real-world problem that uses division and can be solved by drawing a picture and writing an equation.

Independent Practice

In 4, copy and complete the picture. Then write an equation and solve.

4. An auditorium has 230 seats with 46 seats in each section. How many sections does the auditorium have?



In 5, draw a picture and write an equation. Solve.

5. Peter can put 20 cans in one box. How many boxes will he need for 489 cans?

Stuck? Try this....

- What do I know?
- What am I asked to find?
- What diagram can I use to help understand the problem?
- Can I use addition, subtraction, multiplication, or division?
- Is all of my work correct?
- Did I answer the right question?
- Is my answer reasonable?

*For another example, see Set F on page 109.

Independent Practice

For 6 through 8, use the table at the right.

6. Schock's Tree Farm has a large variety of young deciduous trees. Trees can be bought individually or in boxes of 25. What is the cost for 1 Silver Maple tree? Write an equation and solve.

7. What is the difference between the cost of one Japanese Maple tree and one Norway Maple tree?

9. Brad has saved \$1,095 for a 15-day vacation. If he spends the same amount each day, how much money can Brad spend each day?

11. Mindy's family planted a tree when it was 10 ft tall. It has grown about the same amount each year for the last 10 years. It was 12 ft tall after one year, 14 ft tall after two years, 16 ft tall after three years. How tall was the tree after six years? 10 years?

Maple Tree Price List

Name of Tree	Box of 25
Japanese Maple	\$450
Bigleaf Maple	\$200
Silver Maple	\$725
Norway Maple	\$550

8. Mr. Belding is purchasing trees for landscaping a house. What will be his total cost for 1 box of Bigleaf Maple trees, and 5 separate Norway Maple trees?

10. Mrs. Beckman's class has a 15-minute break in the morning and a 10-minute break in the afternoon. How many minutes of break do the students have in two weeks?

12. At the fifth-grade play, student tickets were \$4, and adult tickets were \$6. A total of \$312 dollars was collected for all the tickets. If 54 students came to the play, how much money was collected for adult tickets?

Think About the Process

13. A total of 476 books were donated to a school. Out of those books, 56 were damaged and could not be used. The remaining books were packed into boxes holding 20 books apiece. Which expression could you use to find the number of books for each box?

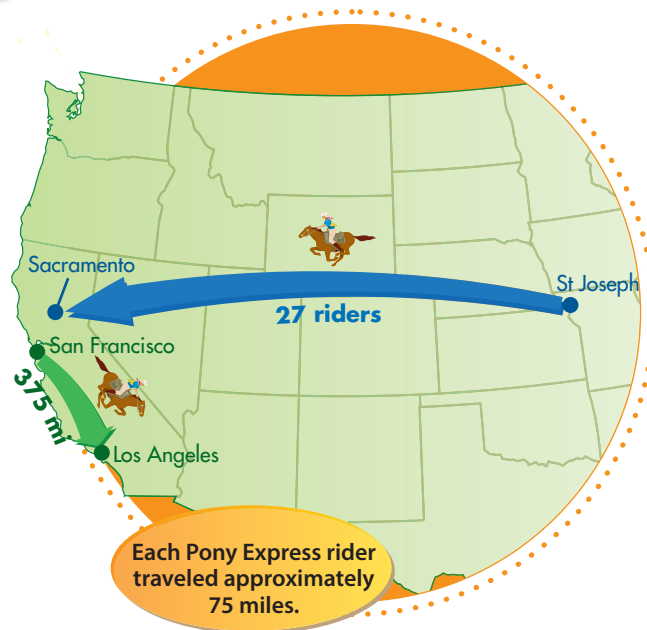
A $476 + 56 + 20$ **C** $(476 - 56) \div 20$
B $(476 - 56) + 20$ **D** $(476 + 56) \div 20$

14. Zoe bought 1.6 pounds of slaw and 2.8 pounds of macaroni. For lunch she served 0.9 pound of slaw. Which expression could you use to find the amount of the food she has left?

A $1.6 + 2.8 + 0.9$ **C** $2.8 - 1.6 - 0.9$
B $1.6 + 2.8 - 0.9$ **D** $2.8 - 0.9$

Mixed Problem Solving

1. A Pony Express rider named Tom traveled his route 15 times in one month. Approximately how many miles did Tom travel?
2. A letter sent from St. Joseph, Missouri was carried by 27 riders as it traveled to Sacramento, California. Approximately how many miles did the letter travel?
3. How many Pony Express riders would be needed to travel the 375 miles between Los Angeles and San Francisco?



4. Marco Polo's journey through Asia lasted 24 years. If he traveled 72 miles per year, how many miles did he travel?
5. In 1542, the first European explorer landed in California. Gold was discovered in 1848. How many years passed after the first explorer landed until gold was discovered?
6. San Bernardino County, California, is about 33 times larger than Sutter County. Sutter County covers 609 square miles. About how many square miles is San Bernardino County?
7. At the "Boston Tea Party," there were 3 groups of colonists who boarded ships and dumped 342 crates of tea into the water. About how much tea was destroyed by each group of colonists?
8. One of Ferdinand Magellan's ships sailed around the Earth. If the trip took 16 months and there are about 30 days in each month, about how many days did the voyage take?
9. **Strategy Focus** Solve using the strategy Draw a Picture and Write an Equation.
John bought 6 chairs that cost \$49 each. How much did John pay for all of the chairs?

1. What is $2,400 \div 80$? (4-1)

- A 3
- B 30
- C 300
- D 3,000

2. A fund has \$10,752 available for scholarships and \$5,250 available for grants. If 42 students are awarded equal scholarships from the fund, how much does each student receive? (4-8)

- A \$125
- B \$255
- C \$256
- D \$264

3. If the money shown is to be divided among 3 people, what should be the first step? (4-3)



- A Exchange the \$100 bill for eight \$10 bills and twenty \$1 bills.
- B Exchange the two \$10 bills for twenty \$1 bills.
- C Exchange the \$100 dollar bill for a hundred \$1 bills.
- D Exchange the \$100 dollar bill for ten \$10 bills.

4. If 283 is divided by 4, where should the first digit of the quotient be placed? (4-4)

- A Because 4 is greater than 2, it should be in the tens place.
- B Because 4 is less than 2, it should be in the tens place.
- C Because 4 is greater than 2, it should be in the hundreds place.
- D Because 4 is less than 2, it should be in the hundreds place.

5. There are 12,156 special agents who work for the FBI. If the special agents are to be divided into groups of 32, about how many agents would be in each group? (4-8)

- A 4,000
- B 3,000
- C 400
- D 300

6. A company ordered 384 note pads. If there are 48 note pads in each box, how many boxes were ordered? (4-6)

- A 7
- B 8
- C 9
- D 12

7. Which of the following is another way to think of $27,000 \div 30$? (4-1)

- A 27 tens \div 30 tens
- B 27 tens \div 3 tens
- C 270 tens \div 3 tens
- D 2,700 tens \div 3 tens

8. What is $818 \div 4$? (4-5)

- A 24 R2
- B 25 R3
- C 204 R2
- D 205 R3

9. Shady Rivers summer camp has 188 campers this week. If there are 22 campers to each cabin, what is the least number of cabins needed? (4-6)

- A 10
- B 9
- C 8
- D 7

10. The lengths of two canals are given in the table. About how many times longer is the Erie Canal than the Chesapeake and Delaware? (4-2)

Ship Canal	Length (in miles)
Chesapeake and Delaware Canal	14
Erie Canal	363

- A 20
- B 25
- C 40
- D 180

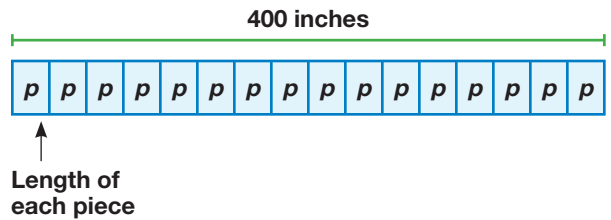
11. What is $384 \div 30$? (4-7)

- A 12
- B 12 R14
- C 12 R24
- D 13

12. What is $186 \div 8$? (4-4)

- A 23 R2
- B 23 R6
- C 24 R2
- D 24 R6

13. For a class project, Mr. Ray purchased 400 inches of ribbon. If the ribbon is to be divided evenly among 16 students, which of the following can be used to find p , the number of inches each piece will be? (4-9)



- A $400 - 16 = p$
- B $400 + 16 = p$
- C $400 \times 16 = p$
- D $400 \div 16 = p$

14. The Eades family is renting a lodge for a family reunion. The cost to rent the lodge is \$975. If 65 people attend the reunion and each person pays the same price, how many dollars will each person pay? (4-7)

- A \$16
- B \$15
- C \$14
- D \$13

Set A, pages 78–79

Find $32,000 \div 80$ using mental math.
Use basic facts and patterns to help.

$32 \div 8 = 4$

$320 \div 80 = 4$

$3,200 \div 80 = 40$

$32,000 \div 80 = 400$

Think $32,000 \div 80$ is the same as $3,200 \text{ tens} \div 8 \text{ tens}$.

Remember that if the basic fact has a zero in the dividend, it should NOT be used to find the number of zeros in the quotient.

1. $360 \div 40 = \square$ 2. $270 \div 90 = \square$

3. $180 \div 20 = \square$ 4. $750 \div 50 = \square$

5. $2,100 \div 30 = \square$ 6. $4,800 \div 80 = \square$

7. $5,400 \div 60 = \square$ 8. $6,300 \div 90 = \square$

Set B, pages 80–81, 100–101

Estimate $364 \div 57$.

Use compatible numbers and patterns.

$$\begin{array}{r} 364 \div 57 \\ \downarrow \quad \downarrow \\ 360 \div 60 = 6 \end{array}$$

So, $364 \div 57$ is about 6.

Remember that compatible numbers are numbers that are easy to compute in your head.

Estimate each quotient.

1. $168 \div 45$ 2. $525 \div 96$

3. $379 \div 63$ 4. $234 \div 72$

5. $\$6,513 \div 73$ 6. $\$7,489 \div 92$

7. $47 \overline{)51,908}$ 8. $58 \overline{)72,124}$

Set C, pages 82–84

Tell how much each person will get if 5 people share \$375 equally.

Use play money to help you divide. You can record your work as shown below.

$$\begin{array}{r} 75 \\ 5 \overline{)375} \\ - 35 \\ \hline 25 \\ 25 \\ \hline \end{array}$$

Each person gets \$75.

So, $\$375 \div 5 = \75 .

Remember to regroup when necessary. Use play money to divide. Tell how much each person will get.

1. 4 people share \$284 equally

2. 6 people share \$546 equally

3. 9 people share \$675 equally

4. 7 people share \$728 equally

5. 8 people share \$872 equally

6. 2 people share \$184 equally

7. 3 people share \$627 equally

Set D, pages 86–88, 90–91

Find $549 \div 6$.

Estimate first. $540 \div 6 = 90$.

$$\begin{array}{r} 91 \text{ R}3 \\ 6 \overline{)549} \\ - 54 \\ \hline 9 \\ - 6 \\ \hline 3 \end{array}$$

Check: $91 \times 6 = 546$; $546 + 3 = 549$.
The quotient is close to the estimate too.

So, $549 \div 6 = 91 \text{ R}3$.

Remember to multiply the quotient and the divisor, and then add the remainder, to check your problem.

- | | |
|-----------------|-----------------|
| 1. $89 \div 9$ | 2. $87 \div 3$ |
| 3. $138 \div 8$ | 4. $755 \div 5$ |
| 5. $816 \div 4$ | 6. $484 \div 6$ |
| 7. $91 \div 3$ | 8. $846 \div 7$ |

Set E, pages 92–94, 96–98

Find $789 \div 19$.

Estimate first. $800 \div 20 = 40$.

$$\begin{array}{r} 41 \text{ R}10 \\ 19 \overline{)789} \\ - 76 \\ \hline 29 \\ - 19 \\ \hline 10 \end{array}$$

Divide the tens. Multiply, subtract, and compare. Bring down the ones.

Divide the ones. Multiply, subtract, and compare. Check the quotient with your estimate.

Remember to check the quotient with your estimate.

- | | |
|---------------------------|---------------------------|
| 1. $16 \overline{)348}$ | 2. $24 \overline{)819}$ |
| 3. $38 \overline{)792}$ | 4. $42 \overline{)523}$ |
| 5. $68 \overline{)9,323}$ | 6. $77 \overline{)9,664}$ |
| 7. $65 \overline{)8,245}$ | 8. $46 \overline{)7,956}$ |

Set F, pages 102–104

Draw a picture and write an equation. Solve.

A grocery store has 12 crates of apples. If each crate contains the same amount and there is a total of 696 apples, how many apples are in each crate?



Let a = apples in each crate.
 $696 \div 12 = a$; $a = 58$

There are 58 apples in each crate.

Remember that drawing a picture can help you before writing an equation.

- If marbles are packaged in bags of 50, how many bags are needed to package 1,750 marbles?
- Bill has \$1,045 to spend on his 11-day vacation. If Bill spends the same amount each day, how much will he spend?