

Name _____

Using Patterns to Divide

5-1
Reteaching

You can use basic facts and patterns to divide mentally.

Using basic facts

What is $350 \div 70$?

Think: $350 \div 70$ is the same as 35 tens \div 7 tens.

$$35 \div 7 = 5$$

$$\text{So, } 350 \div 70 = 5.$$

Using patterns

What is $5,400 \div 60$?

$5,400 \div 60$ is the same as $540 \div 6$.

$$54 \div 6 = 9, \text{ so } 540 \div 6 = 90.$$

$$\text{So, } 5,400 \div 60 = 90.$$

Find each quotient. Use mental math.

1. $280 \div 70 =$ _____

3. $360 \div 60 =$ _____

5. $9,000 \div 30 =$ _____

7. $2,000 \div 40 =$ _____

8. $5,600 \div 70 =$ _____

6. $4,800 \div 80 =$ _____

4. $7,200 \div 80 =$ _____

2. $320 \div 40 =$ _____

9. How is dividing 250 by 50 the same as dividing 2,500 by 500?

10. Explain how you can mentally determine that $35,000 \div 70 = 500$.

Name _____

Using Patterns to Divide

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

1. $360 \div 40 = 36 \text{ tens} \div 4 \text{ tens} =$ _____

2. $5,400 \div 90 = 540 \text{ tens} \div 9 \text{ tens} =$ _____

3. $240 \div 30 = 24 \text{ tens} \div 3 \text{ tens} =$ _____

4. $4,800 \div 10 = 480 \text{ tens} \div 1 \text{ ten} =$ _____

Use mental math to answer the following questions.

5. If the vehicles are divided evenly among the sections, how many vehicles are in each section?

Dealership Vehicle Storage	
Sections of vehicles	4
Vehicles for sale	1,200
Rows per section	10

6. If the vehicles are divided evenly among the rows in each section, how many vehicles are in each row?

7. Suppose there are 297 students going on a field trip. If each schoolbus can carry 58 students, estimate the number of buses that will be needed to transport all the students.

8. If $1,600 \div n = 4$, what is the value of n ?

- A 40 B 400 C 4,000 D 40,000

9. Solve the equation $n \times 50 = 5,000$. Explain your solution.

Name _____

Estimating Quotients with 2-Digit Divisors

5-2
Reteaching

You can use compatible numbers to estimate a quotient.

Find $175 \div 32$.

Step 1: Find compatible numbers for 175 and 32.

32 rounds to 30.

Think: 18 can be divided evenly by 3.

180 is close to 175 and 30 is close to 32.

180 and 30 are compatible numbers.

Step 2: Divide. Use patterns to help you, if possible.

Think: $180 \div 30$ is the same as 18 tens \div 3 tens.

$18 \div 3 = 6$

So, $180 \div 30 = 6$.

Step 3: Check for reasonableness.

$6 \times 30 = 180$

So, a good estimate of $175 \div 32$ is 6.

1. $298 \div 25$

2. $5,391 \div 77$

3. $24,303 \div 12$

4. $276 \div 42$

5. $1,347 \div 54$

6. $5,564 \div 91$

Estimate each quotient using compatible numbers.

At Elmer Elementary School, fifth-grade students are saving money for a summer trip to Washington, D.C. The money Percy has saved is how many times as great as the money James has saved?

Student	Amount Saved
Percy	\$125
Emily	\$ 80
George	\$202
James	\$ 41
Bertha	\$159

Estimating Quotients with 2-Digit Divisors

In 1 through 4, estimate the quotients using compatible numbers.

1. $566 \div 81 =$ _____

2. $453 \div 93 =$ _____

3. $1,423 \div 69 =$ _____

4. $8,631 \div 10 =$ _____

5. If you use $\$99.00 \div 11$ to estimate $\$98.69 \div 11$, is $\$9.00$ greater than or less than the exact answer? Explain.

6. Suppose there are 19 students in a class. A teacher has 122 pencils and passes them out to the class. Estimate the number of pencils each student will receive.

7. At a department store, a package of 12 handkerchiefs costs $\$58.99$. Estimate how much each handkerchief costs.

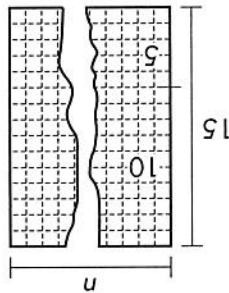
8. Which is the closest estimate for $2,130 \div 33$?
A 7 B 17 C 70 D 700

9. Explain how to estimate $498 \div 12$.

Connecting Models and Symbols

Reteaching
5-3

Divide 345 by 15.



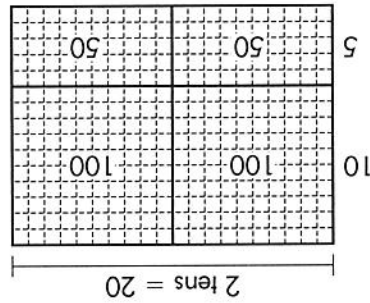
What You Think

Construct a model and write an equation
 $345 \div 15 = n$ or
 $15 \times n = 345$

What You Write

$$\begin{array}{r} 2 \\ 15 \overline{)345} \\ \underline{-30} \\ 45 \\ \underline{-45} \\ 0 \end{array}$$

Step 1: Divide the tens place. 15 goes in to 34 two times, so add two tens (20) to your area model.



What You Think

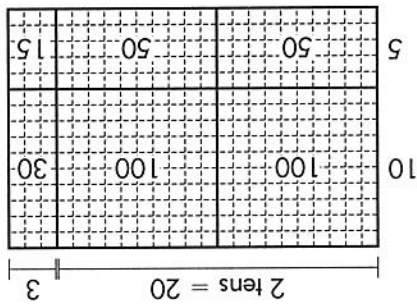
What You Write

Divide the ones place. 15 goes into 45 three times, so add three ones to your area model.

$$\begin{array}{r} 23 \\ 15 \overline{)345} \\ \underline{-30} \\ 45 \\ \underline{-45} \\ 0 \end{array}$$

$345 \div 15 = 23$

What You Think



Use models to help you divide.

1. $12 \overline{)228}$

2. $20 \overline{)940}$

3. $15 \overline{)390}$

Connecting Models and Symbols

Name _____

Practice
5-3

Use arrays, area models, or draw a diagram to help you solve.

1. $10 \overline{)210}$ _____
2. $31 \overline{)217}$ _____
3. $13 \overline{)845}$ _____
4. $34 \overline{)204}$ _____
5. $12 \overline{)720}$ _____
6. $21 \overline{)640}$ _____

Complete each division problem. You may use area models or draw pictures to help.

$$\begin{array}{r}
 \square \square \\
 \hline
 \square \square \\
 - \\
 \square \square \\
 \hline
 14 \overline{)210} \\
 \square \square \\
 - \\
 \square \square \\
 \hline
 \square \square \\
 - \\
 \square \square \\
 \hline
 \square \square
 \end{array}$$

7.

$$\begin{array}{r}
 \square \square \\
 \hline
 \square \square \\
 - \\
 \square \square \\
 \hline
 19 \overline{)228} \\
 \square \square \\
 - \\
 \square \square \\
 \hline
 \square \square \\
 - \\
 \square \square \\
 \hline
 \square \square
 \end{array}$$

8.

9. If \$1000 is divided equally among twelve people, about how much will each person receive?
- A \$92.00 B \$83.00 C \$91.00 D \$87.00

10. Write a story problem using a 3-digit dividend, a 2-digit divisor, and a 2-digit quotient. Draw a picture or use a model to help you illustrate the problem.

Name _____

Dividing by Multiples of 10

5-4
Reteaching

Find $623 \div 40$.

Step 1: Estimate the quotient using compatible numbers, $600 \div 40 = 15$. Then, divide the tens.

$$\begin{array}{r} 15 \\ 40 \overline{) 623} \\ \underline{40} \\ 223 \\ \underline{200} \\ 23 \end{array}$$

Divide $62 \div 40$
 Multiply $1 \times 40 = 40$
 Subtract $62 - 40 = 22$
 Compare $22 < 40$

Step 2: Bring down the ones. Then, divide the ones.

$$\begin{array}{r} 15 \\ 40 \overline{) 623} \\ \underline{40} \\ 223 \\ \underline{200} \\ 23 \end{array}$$

Divide $223 \div 40$
 Multiply $5 \times 40 = 200$
 Subtract $223 - 200 = 23$

Step 3: Since $23 < 40$, write 23 as the remainder in the quotient.

$$\begin{array}{r} 15 \text{ R}23 \\ 40 \overline{) 623} \\ \underline{40} \\ 223 \\ \underline{200} \\ 23 \end{array}$$

Compare $23 < 40$

Complete.

1. $60 \overline{) 288}$

2. $20 \overline{) 455}$

3. $80 \overline{) 866}$

4. $30 \overline{) 233}$

5. $50 \overline{) 498}$

6. Celia plans to pack her books in boxes when her family moves. Each box will hold 20 books. Celia has 97 books. How many boxes will she need to pack all her books?

Name _____

Dividing by Multiples of 10

In 1 through 6, divide.

1. $20 \overline{)467}$

3. $80 \overline{)813}$

5. $90 \overline{)648}$

2. $40 \overline{)321}$

4. $40 \overline{)284}$

6. $10 \overline{)587}$

7. To drive from New York City, NY, to Los Angeles, CA, you must drive about 2,779 miles. If you drive 60 miles per hour, about how many hours would you spend driving?

8. Suppose one bottle of paint can cover 20 tiles. You have 348 tiles. How many bottles of paint do you need to buy to cover all 348 tiles? Explain.

9. A group of 483 students is taking a field trip. One bus is needed for every 50 students. How many buses are needed?

10. A decagon is a ten-sided figure. If a regular decagon has a perimeter of 114 centimeters, how long is each side of the figure?

- A 11.4 cm B 14 cm C 114 cm D 124 cm

11. To figure out how many hours it will take to drive from his home to his cousin's house, a student divides 289 by 60 and estimates that it will take about 4.5 hours. Explain whether you think this is a reasonable estimate.

Name _____

1-Digit Quotients

5-5
Reteaching

Find $436 \div 53$.

To find the answer, first estimate the quotient.

Think: $400 \div 50 = 8$ or $450 \div 50 = 9$

Try 9:

$$\begin{array}{r} 9 \\ 53 \overline{)436} \\ \underline{-477} \end{array}$$

Write 9 in the ones place.
Multiply, $9 \times 53 = 477$.

$477 > 436.$

This estimate is too high.

Try 8:

$$\begin{array}{r} 8 \\ 53 \overline{)436} \\ \underline{-424} \\ 12 \end{array}$$

Write 8 in the ones place.

$Multiply, 8 \times 53 = 424.$

$Subtract, 436 - 424 = 12.$

Compare, $12 < 53$. Write the remainder in the quotient.

$436 \div 53 = 8 \text{ R}12$

Check:

$8 \times 53 = 424$

$424 + 12 = 436$

Complete.

$$\begin{array}{r} 7 \text{ R} \\ 1. \quad 32 \overline{)245} \end{array}$$

Divide. Check by multiplying.

$$\begin{array}{r} 2. \quad 64 \overline{)332} \\ \text{R}12 \end{array}$$

$$\begin{array}{r} 3. \quad 51 \overline{)489} \\ \text{R} \end{array}$$

$$4. \quad 49 \overline{)216}$$

$$5. \quad 79 \overline{)698}$$

$$6. \quad 25 \overline{)194}$$

7. Explain how you know the answer to the problem below has an error.

$$\begin{array}{r} 2 \text{ R}86 \\ 77 \overline{)240} \\ \underline{-154} \\ 86 \end{array}$$

Name _____

1-Digit Quotients

In 1 through 6, find each quotient.

1. $\underline{37} \overline{)120}$

2. $\underline{39} \overline{)342}$

3. $\underline{62} \overline{)338}$

4. $\underline{42} \overline{)284}$

5. $\underline{82} \overline{)599}$

6. $\underline{55} \overline{)474}$

7. Solomon has \$18. He wants to purchase concert tickets for himself and 5 friends. Each ticket costs \$19. Does he have enough money? Explain.

8. Which problem will have the greater quotient, $376.0 \div 93$ OR $376 \div 93.01$? Explain how you know.

9. Which is $458 \div 73$?

- A 5 R19 B 5 R20 C 6 R19 D 6 R20

10. A student solves the problem $354 \div 24$. The student finds an answer of 13 R40. Explain how you can tell that the answer is incorrect just by looking at the remainder.



6. April has 95 baseball cards. She wants to organize them on pages that hold 18 cards each. She has 5 pages. Does April have enough pages to organize all her cards?

4. $13 \overline{)175}$

5. $44 \overline{)508}$

Divide. Check by multiplying.

1. $39 \overline{)437}$
 11 R

2. $24 \overline{)627}$
 R3

3. $26 \overline{)917}$
 R

Complete.



Step 1: Round the divisor to the nearest ten. Look at the first digit in the divisor and the first digit in the dividend. What basic division fact is the best estimate of the quotient of these two numbers?
 $8 \div 3 = 2 \text{ R}2$
 $34 \overline{)866} \leftarrow 30 \overline{)866}$

Step 1: Round the divisor to the nearest ten. Look at the first digit in the divisor and the first digit in the dividend. What basic division fact is the best estimate of the quotient of these two numbers?

Step 2: Use this fact to begin the quotient. Write it over the tens place.
 $2 \times 34 = 68$.
 $34 \overline{)866}$
 $\underline{-68}$
 186
 Subtract and bring down the next digit in the dividend.

Step 2: Use this fact to begin the quotient. Write it over the tens place.

Step 3: What basic division fact is the best estimate of the next division? Use this fact and write it over the ones place.
 $25 \overline{)866}$
 $\underline{-68}$
 186
 $\underline{-170}$
 16
 Multiply, $5 \times 34 = 170$.
 Subtract. Compare the remainder with the divisor.
 If the remainder is less than the divisor, write it in the quotient.
 Check.
 $25 \times 34 = 850$
 $850 + 16 = 866$

Step 3: What basic division fact is the best estimate of the next division? Use this fact and write it over the ones place.
 $25 \overline{)866}$
 $\underline{-68}$
 186
 $\underline{-170}$
 16
 Multiply, $5 \times 34 = 170$.
 Subtract. Compare the remainder with the divisor.
 If the remainder is less than the divisor, write it in the quotient.
 Check.
 $25 \times 34 = 850$
 $850 + 16 = 866$



2-Digit Quotients

Name _____

5-6
 Reteaching

Estimating and Dividing with Greater Numbers

Estimate first. Then use a calculator to find the quotient. Round to the nearest hundredth if necessary.

1. $53 \overline{)6,324}$
2. $52 \overline{)6,348}$
3. $86 \overline{)31,309}$
4. $33 \overline{)3,455}$

5. $17,496 \div 91 =$ _____
6. $25,214 \div 47 =$ _____
7. $2,312 \div 26 =$ _____
8. $4,895 \div 83 =$ _____

The Humphrey family decided to fly from San Francisco to New York City, and from there to Rome, New Delhi, and finally Tokyo.

Distances by Plane	
San Francisco to New York	4,140 km
New York to Rome	6,907 km
Rome to New Delhi	5,929 km
New Delhi to Tokyo	5,857 km

9. It took the Humphrey family 6 hours to travel from San Francisco to New York. How many kilometers did they travel per hour?

10. During the flight from New Delhi to Tokyo, flight attendants came through with snacks every 600 km. How many times did they come through?

11. When the family arrived in New Delhi from Rome, the youngest son asked the pilot how fast he was flying the plane. The pilot told him about 847 km per hour. How many hours did it take the family to fly from Rome to New Delhi?
 A 5 h B 6 h C 7 h D 8 h
12. Write a word problem that would require you to use $5,621 \div 23$.

Name _____

Problem Solving: Missing or Extra Information

Decide if each problem has extra or missing information. Solve if possible.

1. It takes 4 hours to drive from Boston to New York. Jordan has a meeting in New York at 2:00 P.M. Can she arrive at her meeting on time?

2. Franco hikes 4 miles each day for 5 days. He carries 100 ounces of water with him. It takes him 1 hour to hike 4 miles. How many hours did he hike in 5 days?

3. Write a real-world problem that gives extra information. Under the problem write what the extra information is.

4. Jorge buys T-shirts for \$4 each and paints designs on them. He sells the designed T-shirts for \$7 each. What information is needed to find how much profit he makes in one week?

- A The price of T-shirts at a store
- B The color of the T-shirts that he buys
- C The types of designs he draws on the T-shirts
- D The number of T-shirts he sells in one week

5. Krista can type 60 words per minute. She wrote an essay by hand in 5 hours, and it is now 4 pages long and has 500 words in it. She wants to type up her essay. About how long will it take to type her essay? Write what the extra or missing information is. Then solve if possible.

2. What information did **NOT** help you solve the problem?

1. What information helped you solve the problem?

Look back at the items listed in "What you know."

Is your answer correct?

$$\text{Yes, } 8 + 3 = 11$$

Look Back and Check

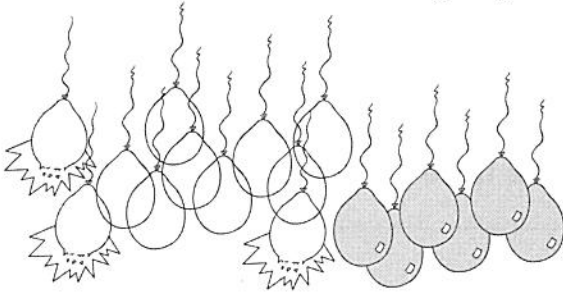
Write the answer in a complete sentence.

Solve the problem.

Draw a picture of what you know.

Aiko bought 6 red balloons and 11 clear balloons for a party. During the party, 3 clear balloons burst but none of the red balloons did. After the party, Aiko had 8 clear balloons remaining.

$$11 - 3 = 8$$



Plan and Solve

What are you trying to find?

The number of clear balloons remaining after the party.

No red balloons burst during the party.

Three clear balloons burst during the party.

Aiko bought 11 clear balloons.

Aiko bought 6 red balloons.

What do you know?

Read and Understand

Aiko bought 6 red balloons and 11 clear balloons for a party. During the party, 3 clear balloons burst but none of the red balloons did. How many clear balloons did Aiko have after the party?

Problem Solving: Missing or Extra Information

Name _____

5-8
Reteaching