

Name _____ Date _____

Modeling Division

Use play \$10 and \$1 bills to find the missing information.

	Amount in All	Number of Equal Groups	Amount in Each Group	Amount Left Over
	\$12	2	\$6	none
1.	\$17	4		
2.	\$21	5		
3.	\$25		\$5	
4.	\$27		\$6	
5.	\$31		\$5	
6.	\$34	8		

Divide. Tell if there is a remainder.

- Divide \$26 into 3 equal groups. _____
- Divide \$18 into 6 equal groups. _____
- Divide \$33 into groups with \$4 in each group. _____

Write About It

- Five friends were given 15 one-dollar bills to share equally.
Why is it possible for these 5 friends to share the bills equally?

- If the 5 friends were given 1 ten-dollar bill and 5 one-dollar bills, why would they have to regroup the ten-dollar bill to share the bills evenly?

Name _____ Date _____

Two-Digit Quotients

Example

$$\begin{array}{r}
 21 \text{ R}2 \\
 3 \overline{)65} \\
 \underline{-6} \\
 05 \\
 \underline{-3} \\
 2
 \end{array}$$

Divide. Tell if there is a remainder.

1. $2 \overline{)41}$

2. $5 \overline{)50}$

3. $3 \overline{)37}$

4. $4 \overline{)81}$

5. $7 \overline{)73}$

6. $2 \overline{)89}$

7. $3 \overline{)93}$

8. $3 \overline{)64}$

9. $2 \overline{)49}$

10. $5 \overline{)89}$

11. $2 \overline{)84}$

12. $82 \div 4$

13. $67 \div 3$

14. $28 \div 2$

15. $79 \div 7$

Problem Solving • Reasoning

16. Jill had 37 buttons. She gave each of her 3 brothers an equal number of buttons. How many buttons were left over?

17. There are 32 students in Simon's class. The teacher told students to form groups of 3. How many students could not form a group of 3?

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Regrouping in Division

Example

$$\begin{array}{r} 14 \text{ R}1 \\ 3 \overline{)43} \\ \underline{-3} \\ 13 \\ \underline{-12} \\ 1 \end{array}$$

Divide.

1. $2 \overline{)31}$

2. $5 \overline{)60}$

3. $3 \overline{)50}$

4. $4 \overline{)71}$

5. $7 \overline{)87}$

6. $2 \overline{)83}$

7. $6 \overline{)93}$

8. $9 \overline{)91}$

9. $2 \overline{)90}$

10. $5 \overline{)91}$

11. $4 \overline{)84}$

12. $75 \div 5$

13. $83 \div 3$

14. $57 \div 2$

15. $39 \div 3$

Problem Solving • Reasoning

16. Sonia, Sharon, and Al share a bag of pretzels. There are 40 pretzels in the bag. If they share all the pretzels evenly, how many are left over?

17. Trevor put all 54 of his CDs in 4 equal rows on his shelves. Any CDs that did not fit in the rows were put on his table. How many CDs were put on the table?

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Problem-Solving Skill: Interpreting Remainders

When you solve a problem that has a remainder, you need to decide how to interpret the remainder. Sometimes the remainder is the answer. Sometimes you increase the quotient or drop the remainder to answer the question.

- At Mary's Apple Farm, 89 apples are to be placed in small bags. Each bag holds 5 apples. How many bags are needed?
- The next day, 74 apples are placed in the small bags. Each bag holds 5 apples. How many apples are not placed in the bag that is not full?

Think:

Will the quotient or the remainder tell how many bags are needed?

Think:

Will the answer tell how many apples are in bags or how many are not in bags?

- There are 26 students in the class. Packages that contain 3 apples will be given to the class. How many packages of apples will be needed so that each student can have one apple?
 - Mrs. Thomas's class will help pack apples in shipping boxes. The class is given 93 apples to pack. Each shipping box holds 8 apples. How many boxes can the class fill?
- _____
- _____

Solve. Use these and other strategies.

Problem-Solving Strategies

- Write an Equation
- Draw a Picture
- Find a Pattern
- Guess and Check

- Adam and Becky have \$53 total. Becky has \$9 more than Adam. How much money does each have?
 - Eddie collects football cards. He has 30 cards that he wants to display in equal rows. How many different ways can he arrange the football cards in equal rows so that there are no cards left over?
- _____
- _____

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Mental Math: Divide

Multiples of 10, 100, and 1,000

Example

$6 \div 3 = 2$

$60 \div 3 = 20$

$600 \div 3 = 200$

Divide.

1. $12 \div 4 = \underline{\quad}$

2. $20 \div 5 = \underline{\quad}$

$120 \div 4 = \underline{\quad}$

$200 \div 5 = \underline{\quad}$

$1,200 \div 4 = \underline{\quad}$

$2,000 \div 5 = \underline{\quad}$

3. $180 \div 2 = \underline{\quad}$

4. $900 \div 3 = \underline{\quad}$

5. $140 \div 7 = \underline{\quad}$

6. $250 \div 5 = \underline{\quad}$

7. $240 \div 3 = \underline{\quad}$

8. $160 \div 2 = \underline{\quad}$

9. $640 \div 8 = \underline{\quad}$

10. $420 \div 6 = \underline{\quad}$

11. $240 \div 6 = \underline{\quad}$

12. $1,400 \div 2 = \underline{\quad}$

13. $2,700 \div 3 = \underline{\quad}$

14. $7,200 \div 9 = \underline{\quad}$

15. $1,200 \div 6 = \underline{\quad}$

16. $2,800 \div 4 = \underline{\quad}$

17. $1,800 \div 3 = \underline{\quad}$

18. $3,600 \div 6 = \underline{\quad}$

19. $8,100 \div 9 = \underline{\quad}$

20. $2,100 \div 7 = \underline{\quad}$

Problem Solving • Reasoning

21. Larry has a box of 1,200 paper clips. There is an equal number of the paper clips in 3 different colors: red, white, and black. How many black paper clips does Larry have?
- _____

22. There are 240 students at Chris's school. The students are divided into 8 classes of equal size. How many students are in each class?
- _____

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Three-Digit Quotients

Example

$$\begin{array}{r}
 275 \text{ R}2 \\
 3 \overline{)827} \\
 \underline{-6} \downarrow \\
 22 \\
 \underline{-21} \downarrow \\
 17 \\
 \underline{-15} \\
 2
 \end{array}$$

Divide.

1. $2 \overline{)361}$

2. $5 \overline{)641}$

3. $3 \overline{)495}$

4. $4 \overline{)621}$

5. $7 \overline{)837}$

6. $2 \overline{)383}$

7. $6 \overline{)923}$

8. $3 \overline{)473}$

9. $2 \overline{)932}$

10. $5 \overline{)711}$

11. $4 \overline{)924}$

12. $745 \div 5$

13. $875 \div 3$

14. $517 \div 2$

15. $559 \div 3$

Problem Solving • Reasoning

16. Jim used 695 beads to make a beaded bag. The beads came in packs of 5. How many packs of beads did Jim use?
- _____

17. There are 271 students at Holly's school. The students lined up in 4 equal rows for the school photograph. Any students who could not fit in the rows sat at the front. How many students sat at the front?
- _____

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Place the First Digit of the Quotient

Example

$$\begin{array}{r}
 58 \text{ R}1 \\
 3 \overline{)175} \\
 \underline{-15} \downarrow \\
 25 \\
 \underline{-24} \\
 1
 \end{array}$$

Divide. Then check your work.

1. $2 \overline{)149}$

2. $5 \overline{)381}$

3. $3 \overline{)153}$

4. $4 \overline{)169}$

5. $7 \overline{)580}$

6. $2 \overline{)133}$

7. $6 \overline{)506}$

8. $3 \overline{)161}$

9. $2 \overline{)199}$

10. $5 \overline{)368}$

11. $4 \overline{)216}$

12. $206 \div 5$

13. $129 \div 3$

14. $154 \div 2$

15. $296 \div 3$

Problem Solving • Reasoning

16. Julia had 174 stickers. She sorted them into equal groups of animals, people, and words. How many of each group did she have?

17. Valerie has 182 stickers. Pete has half as many stickers as Valerie. How many stickers do they have together?

Name _____ Date _____

Divide Money

Example

$$\begin{array}{r}
 \$1.37 \\
 3 \overline{) \$4.11} \\
 \underline{-3} \\
 11 \\
 \underline{-9} \\
 21 \\
 \underline{-21} \\
 0
 \end{array}$$

Divide. Then check your work.

1. $2 \overline{) \$3.10}$

2. $5 \overline{) \$7.25}$

3. $3 \overline{) \$6.81}$

4. $4 \overline{) \$8.84}$

5. $7 \overline{) \$434}$

6. $2 \overline{) \$5.06}$

7. $6 \overline{) \$3.06}$

8. $3 \overline{) \$183}$

9. $2 \overline{) \$7.84}$

10. $5 \overline{) \$8.95}$

11. $4 \overline{) \$5.08}$

12. $\$8.92 \div 4$

13. $\$4.29 \div 3$

14. $\$194 \div 2$

15. $\$7.74 \div 3$

Problem Solving • Reasoning

16. Brett paid \$3.80 for 5 raffle tickets at the local fair. What was the price of 1 ticket?
- _____

17. The fair raised \$921. The money was given equally to 3 local charities. How much did each charity receive?
- _____

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Zeros in the Quotient

Example

$$\begin{array}{r}
 109 \text{ R}1 \\
 7 \overline{)764} \\
 \underline{-7} \quad \downarrow \downarrow \\
 064 \\
 \underline{-63} \\
 1
 \end{array}$$

Divide.

1. $2 \overline{)412}$

2. $5 \overline{)801}$

3. $6 \overline{)365}$

4. $4 \overline{)829}$

5. $7 \overline{)984}$

6. $2 \overline{)605}$

7. $6 \overline{)618}$

8. $3 \overline{)626}$

9. $2 \overline{)820}$

10. $5 \overline{)652}$

11. $4 \overline{)360}$

12. $507 \div 5$

13. $496 \div 7$

14. $507 \div 2$

15. $316 \div 3$

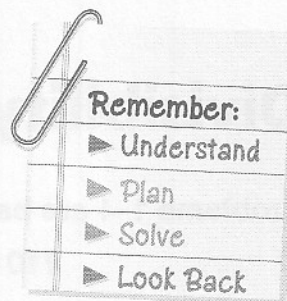
Problem Solving • Reasoning

16. Bagels are sold in boxes of 6. If a store sells 624 bagels in one day, how many boxes were sold?
- _____

17. The bagel store had 216 customers in one day. Half the customers arrived in the morning and half arrived in the afternoon. How many customers arrived in the morning?
- _____

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Problem-Solving Strategy: Work Backward



Work backward to solve the following problems.

- Sean began painting his house on Monday. He worked 5 hours longer painting on Tuesday than he had on Monday. On Wednesday he worked 4 hours less than on Tuesday. On Thursday he painted 6 hours longer than on Wednesday. He painted for 11 hours on Thursday. How long did he paint on Monday?
- Mr. Brown made some lemonade for Spring Games Day at the school. When 4 gallons of the lemonade had been drunk, he made 6 gallons more. The children drank 4 more gallons. There were 2 gallons of lemonade left over at the end of the day. How much lemonade did Mr. Brown make at the start?

Think:

What information should you start with?

Think:

What information should you start with?

- On Monday, Bill checked out some books from the library. On Tuesday, he checked out 4 more books. On Wednesday, he returned 3 books. On Thursday, he checked out 2 books. On Friday, he returned all five books that he still had. How many books did Bill check out on Monday?
- Gwen, Carla, Tod, and Dave are all reading the same book. So far, Gwen has read 10 pages less than Tod. Dave has read twice as many pages as Gwen. Carla has read 15 pages less than Dave. Carla has read 43 pages. How many pages has Tod read?

Solve. Use these and other strategies.

Problem-Solving Strategies

- Find a Pattern
- Guess and Check
- Draw a Picture
- Work Backward

- Look at the number pattern:
3, 7, 11, 15, 19, 23, 27, 31
What is the next number likely to be? Why?
- Joellen bought a hammer and a box of nails. The nails cost \$3. Joellen paid with a \$20 bill. Her change was \$2. How much did the hammer cost?

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Divisibility Rules

Problems 1-4 are based on this group of numbers.

110 70 35 95

1. Which numbers are divisible by 2?

2. Which numbers are divisible by 10?

3. Which numbers are divisible by 5?

4. Which numbers are divisible by both 2 and 5?

Complete this table. Use a check mark to show divisibility.

	10	28	35	70	88	50	95
5. Divisible by 2	✓						
6. Divisible by 5	✓						
7. Divisible by 10	✓						

Problem Solving • Reasoning

8. Find a number between 21 and 39 that is divisible by both 2 and by 5.

9. Find two numbers between 21 and 39 that are divisible by 5 but not divisible by 2.

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Prime and Composite Numbers

Write the factors for the numbers in the table below. Then, decide whether each number is prime or composite.

	Number	Factors	Prime or Composite
1.	31	1, 31	Prime
2.	32		
3.	33		
4.	34		
5.	35		
6.	36		
7.	37		
8.	38		
9.	39		
10.	40		

11. Which numbers from 41 to 50 are prime numbers?

12. Which numbers from 41 to 50 are composite numbers?

Problem Solving • Reasoning

13. Are there any prime numbers divisible by 2? Explain.

14. John thought of a prime number between 1 and 10. Fred thought of a prime number between 20 and 30. The difference between the two numbers is 24. What were the two numbers?

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Modeling Averages

Use counters to find the average of each set of numbers, or you may draw.

1. 2, 8 _____

2. 3, 5 _____

3. 5, 9 _____

4. 1, 2, 3 _____

5. 2, 3, 7 _____

6. 3, 5, 7 _____

7. 4, 6, 10, 12 _____

8. 4, 9, 6, 5 _____

9. 9, 10, 6, 11 _____

Use counters to find the missing number in each group.

10. Average = 4
_____, 6

11. Average = 7
4, _____

12. Average = 3
2, _____

13. Average = 6
_____, 5, 7

14. Average = 9
7, _____, 14

15. Average = 5
4, 9, _____

Write About It

16. Look at the numbers 9, 7, 10, 2, 11. Will the average of these numbers be closer to 2 or to 11? Explain your answer.

17. What operations could you use to find the missing number in a group if you know the average?

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Find Averages

Example

$$\begin{array}{r}
 4, 6, 7, 10 \\
 5 \\
 6 \\
 7 \\
 +10 \\
 \hline
 28 \\
 \text{Average} = 7
 \end{array}$$

Find the average for each group of numbers.

1. 42, 22, 35

Average = _____

2. 102, 391, 89

Average = _____

3. \$12, \$31, \$4, \$17

Average = _____

4. 8, 18, 180, 24, 15

Average = _____

5. 7, 2, 9, 22

Average = _____

6. \$70, \$89, \$153

Average = _____

7. 24, 28, 16, 19, 13

Average = _____

8. 1, 100, 4

Average = _____

Problem Solving • Reasoning

9. Dave, Max, and Frank bought kites. Dave's kite cost \$14, Max's kite cost \$23, and Frank's kite cost \$17. What was the average cost of their kites?

10. Greg saw three plays in one week. The lengths of the plays were 2 hr 30 min, 1 hr 15 min, and 2 hr 15 min. What was the average length of the plays that Greg saw?

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Estimate Quotients

Example

$$5 \overline{)354} \rightarrow 5 \overline{)350}^{\begin{array}{c} 70 \\ \hline \end{array}}$$

Estimate each quotient.

1. $8 \overline{)635}$

2. $7 \overline{)209}$

3. $2 \overline{)176}$

4. $4 \overline{)167}$

5. $9 \overline{)191}$

6. $3 \overline{)235}$

7. $5 \overline{)462}$

8. $8 \overline{)152}$

9. $7 \overline{)500}$

10. $6 \overline{)527}$

11. $6 \overline{)111}$

12. $4 \overline{)294}$

13. $3 \overline{)155}$

14. $5 \overline{)203}$

Problem Solving • Reasoning

15. Rick has 357 different marbles. The marbles come in six colors and there is approximately the same number of each different color. Estimate the number of each color marble Rick has.
- _____

16. Glen and 2 of his friends spent \$62 on marbles. Each person spent approximately the same amount. Estimate how much each person spent on marbles.
- _____

Name _____ Date _____

Divide Greater Numbers

Example

$$\begin{array}{r}
 454 \text{ R1} \\
 5 \overline{)2,271} \\
 \underline{-20} \\
 27 \\
 \underline{-25} \\
 21 \\
 \underline{-20} \\
 1
 \end{array}$$

Divide. Check your work.

1. $2 \overline{)3,645}$

2. $5 \overline{)12,423}$

3. $3 \overline{)8,120}$

4. $4 \overline{)3,408}$

5. $7 \overline{)6,590}$

6. $2 \overline{)6,845}$

7. $6 \overline{)1,297}$

8. $3 \overline{)9,032}$

9. $2 \overline{)\$1,880}$

10. $5 \overline{)6,159}$

11. $4 \overline{)29,402}$

12. $1,062 \div 5$

13. $\$12,749 \div 3$

14. $3,007 \div 2$

15. $1,664 \div 3$

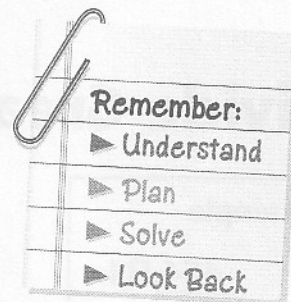
Problem Solving • Reasoning

16. The population of Heather's town is 8,032. Half of the population is male. How many men live in Heather's town?
- _____

17. Shannon's almanac has 12,798 references. The references are divided equally into three volumes. How many references are in each volume?
- _____

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Problem-Solving Application: Use Operations



Decide which operations to use to solve these word problems.

- The Carson Main Library held a special 3-day exhibit of a local artist's work. On the first day, 8,233 people visited the exhibit. On the second day, 7,659 people visited. What was the average number of people who visited the exhibit each day?
- The first day of the exhibit, 857 art items were checked out of the library. The next day, 634 items were checked out. The third day, 591 items were checked out. What was the average number of items checked out each day?

Think:

What operations do I use to solve this problem?

Think:

What operations do I use to solve this problem?

- The art exhibit used 15 portable wall sections. Art was hung on each side of each wall. Eight wall sections had 6 large paintings on each side. Seven sections had 9 small paintings on each side. How many paintings were there in all?
- To set up the exhibit, advertise it, plan it, and promote it took 25 library employees. Each worked an average of 7 hours on the exhibit. Altogether, how many hours did the employees work on the exhibit?

Solve. Use these and other strategies.

Problem-Solving Strategies

- Draw a Picture
- Guess and Check
- Work Backward
- Write an Equation
- Set it up

- The total items checked out for the 3 days was an average of about 3,000 per day. The normal number per day is about 1,400. About how many times as great was circulation during the exhibit?
- The coffee shop in the library lobby sold about 650 muffins a day for each of the 3 days. Muffins cost \$2.00. How much money came in for muffins during the exhibit?
