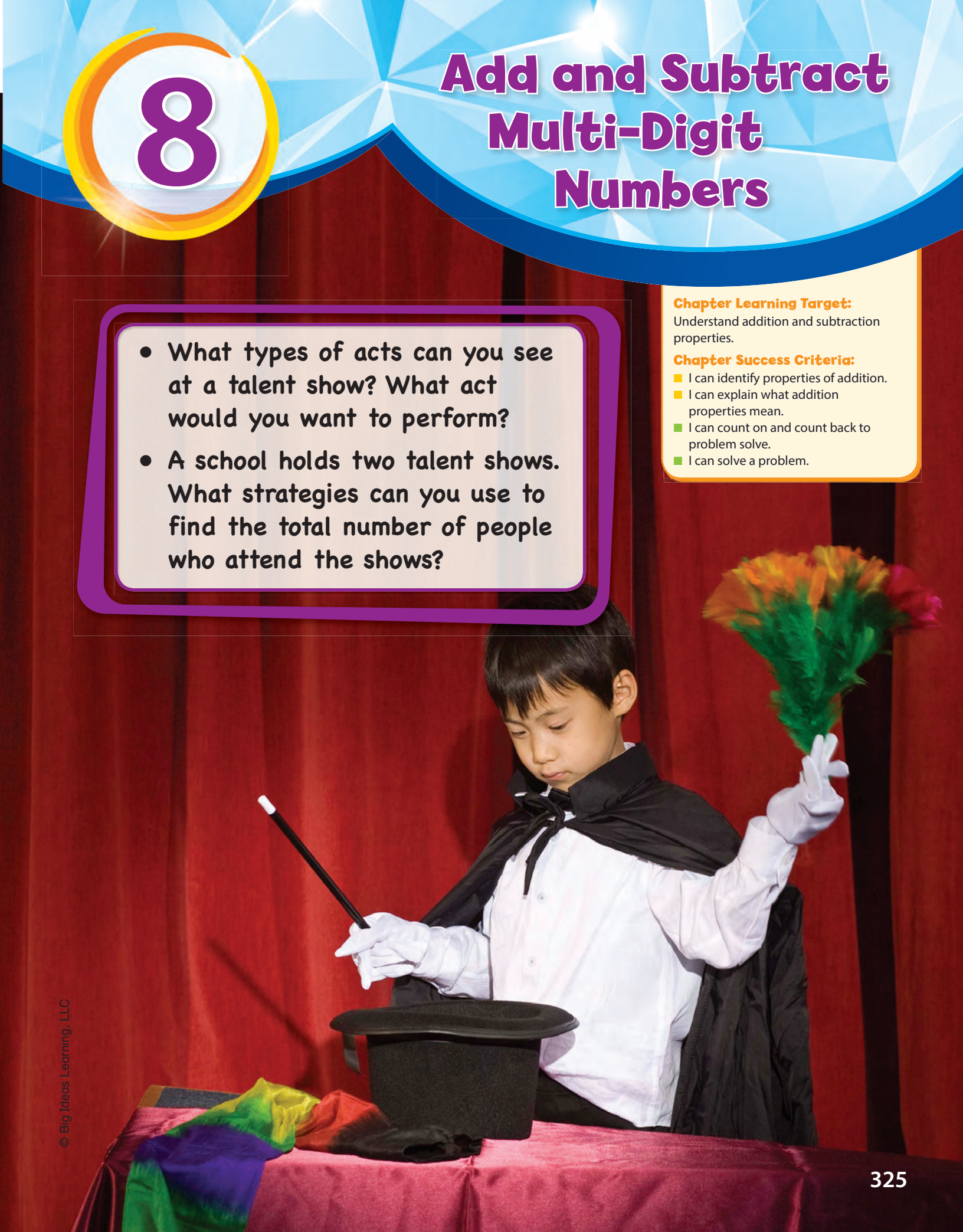
8 Add and Subtract Multi-Digit Numbers

- What types of acts can you see at a talent show? What act would you want to perform?
- A school holds two talent shows. What strategies can you use to find the total number of people who attend the shows?

Chapter Learning Target:
Understand addition and subtraction properties.

Chapter Success Criteria:
- I can identify properties of addition.
- I can explain what addition properties mean.
- I can count on and count back to problem solve.
- I can solve a problem.



Name _____

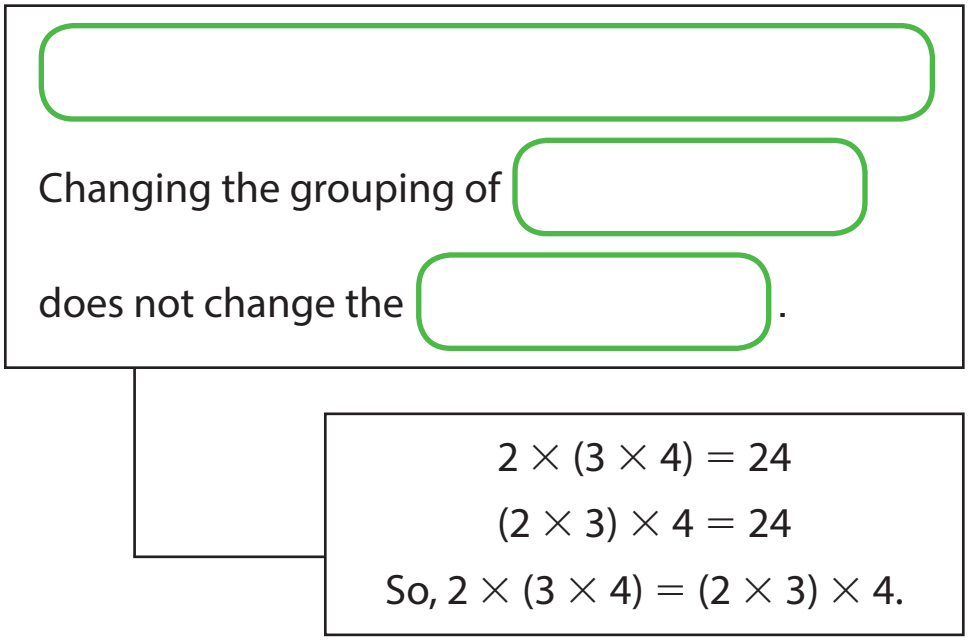
8 Vocabulary

Review Words

Associative Property of Multiplication
factors
product

Organize It

Use the review words to complete the graphic organizer.



Define It

Use your vocabulary cards to match.

1. Addition Property of Zero

6 + 5 = 5 + 6

2. Associative Property of Addition

5 + 0 = 5

3. Commutative Property of Addition

7 + (3 + 4) = (7 + 3) + 4

Chapter 8 Vocabulary Cards

Addition Property of Zero

Associative Property of Addition

Commutative Property of Addition

inverse operations

Changing the grouping of addends does not change the sum.

$7 + (3 + 4) = 14$

$(7 + 3) + 4 = 14$

So, $7 + (3 + 4) = (7 + 3) + 4$.

The sum of any number and 0 is that number.

$5 + 0 = 5$

$48 + 0 = 48$

$376 + 0 = 376$

Operations that "undo" each other, such as addition and subtraction or multiplication and division

Addition $9 + 2 = 11$	Subtraction $11 - 2 = 9$
Multiplication $4 \times 3 = 12$	Division $12 \div 3 = 4$

Changing the order of addends does not change the sum.

$6 + 5 = 11$

$5 + 6 = 11$

So, $6 + 5 = 5 + 6$.

Name _____

Identify Addition Properties 8.1

Learning Target: Identify and use addition properties.

Success Criteria:

- I can identify the Associative and Commutative Properties of Addition.
- I can identify the Addition Property of Zero.
- I can use an addition property to find a sum.
- I can explain what the addition properties mean.

Explore and Grow

Use the addition table to write all of the addition equations that have a sum of 13.

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20

What do you notice?

MP **Structure** Use the addition table to write all of the equations that have a sum of 12. What do you notice now?

Think and Grow: Addition Properties

Commutative Property of Addition

Changing the order of addends does not change the sum.

$$3 + 5 = 5 + 3$$

Associative Property of Addition

Changing the grouping of addends does not change the sum.

$$(7 + 6) + 4 = 7 + (6 + 4)$$

Addition Property of Zero

The sum of any number and 0 is that number.

$$9 + 0 = 9$$

Example Identify the property.

$56 + 0 = 56$ _____

$12 + 29 = 29 + 12$ _____

$(24 + 17) + 23 = 24 + (17 + 23)$ _____

Show and Grow

Identify the property.

1. $16 + (14 + 19) = (16 + 14) + 19$

2. $11 + 54 = 54 + 11$

3. $0 + 43 = 43$

4. $(27 + 18) + 22 = 27 + (18 + 22)$

Name _____

Apply and Grow: Practice

Identify the property.

5. $(28 + 16) + 14 = 28 + (16 + 14)$

6. $12 + 35 = 35 + 12$

7. $36 + 0 = 36$

8. $11 + (9 + 57) = (11 + 9) + 57$

Find the missing number.

9. $23 + 45 = 45 +$ _____

10. $(13 + 12) +$ _____ $= 13 + (12 + 45)$

11. $4 + (76 + 10) = ($_____ $+ 76) + 10$

12. $98 +$ _____ $= 98$

13. (_____ $+ 0) + 32 = 6 + 32$

14. $64 + (5 + 23) = (23 +$ _____$) + 64$

15. DIG DEEPER! Use the numbers 24, 54, and 11 to write an equation that shows the Associative Property of Addition.

Writing Use a property to find the sum. Which property did you use? Why?

16. $54 + 0 =$ _____

17. $(46 + 17) + 33 =$ _____

18. $20 + 63 =$ _____

Think and Grow: Modeling Real Life

A tourist visits 13 museums, 19 memorials, and 11 monuments. Explain how to use a property to find the total number of sites the tourist visits.

$$(13 + 19) + 11 = ?$$

Explain:

The tourist visits _____ sites.

Show and Grow

19. A farmer sells 34 cucumbers, 48 ears of corn, and 26 bell peppers at a farmer's market. Explain how to use properties to find the total number of vegetables the farmer sells.

$$(34 + 48) + 26 = ?$$

20. How many people go on the field trip?

Field Trip	
People	**Number**
Adults	20
Grade 2 students	47
Grade 3 students	53

DIG DEEPER! The Grade 2 and Grade 3 students are divided into 10 equal groups. How many students are in each group? Explain.

Name _____

Homework & Practice 8.1

Learning Target: Identify and use addition properties.

Example Identify the property.

$22 + 43 = 43 + 22$ Commutative Property of Addition

$87 + 0 = 87$ Addition Property of Zero

$(15 + 36) + 24 = 15 + (36 + 24)$ Associative Property of Addition

Identify the property.

1. $(79 + 12) + 13 = 79 + (12 + 13)$

2. $24 + 63 = 63 + 24$

3. $0 + 64 = 64$

4. $37 + (43 + 19) = (37 + 43) + 19$

5. $17 + 38 = 38 + 17$

6. $18 + 48 = 48 + 18$

Find the missing number.

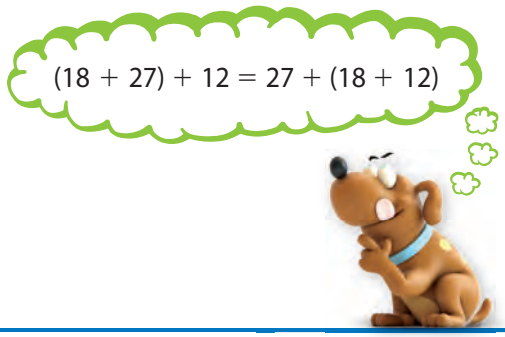
7. $36 + \_\_\_\_\_ = 36$

8. $25 + \_\_\_\_\_ + 11 = 25 + 11$

9. $0 + 43 = \_\_\_\_\_ + 0$

10. $(22 + 19) + 28 = 19 + (\_\_\_\_\_ + 28)$

11. **Number Sense** Newton uses two properties. Identify the properties he uses.



12. **Open-Ended** Write an equation that shows the Commutative Property of Addition.

13. **Structure** Explain how the Associative Property of Addition and the Associative Property of Multiplication are alike and how they are different.

14. **Modeling Real Life** A florist uses 11 roses, 12 lilies, and 19 daisies to make bouquets. How many flowers does he use?

DIG DEEPER! The florist uses 6 flowers for each bouquet. How many bouquets does he make? Explain.

Review & Refresh

Find the product.

15. $\begin{array}{r} 0 \\ \times\ 3 \\ \hline \end{array}$

16. $\begin{array}{r} 7 \\ \times\ 7 \\ \hline \end{array}$

17. $\begin{array}{r} 10 \\ \times\ 4 \\ \hline \end{array}$

18. $\begin{array}{r} 7 \\ \times\ 6 \\ \hline \end{array}$

Name _____

Use Number Lines to Add 8.2

Learning Target: Use a number line to find a sum.

Success Criteria:

- I can use the *count on* strategy to add on a number line.
- I can use the *make a ten* strategy to add on a number line.

Explore and Grow

Color to find 33 + 25. Then model your jumps on the number line.

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

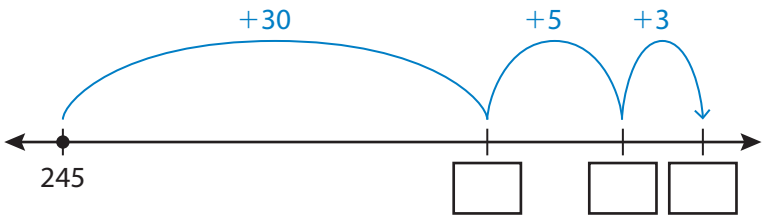
33 + 25 = _____

MP **Reasoning** How can finding 33 + 25 help you find 533 + 25?

Think and Grow: Adding on a Number Line

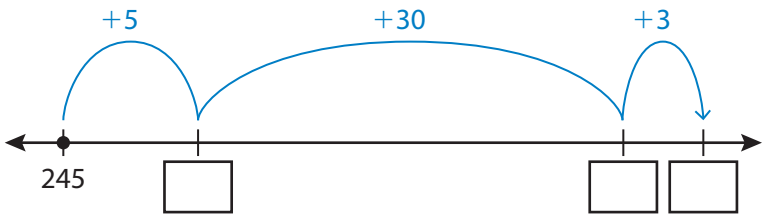
Example Find 245 + 38.

One Way: Use the *count on* strategy. Start at 245. Count on by tens, then by ones.



245 + 38 = _____

Another Way: Use the *make a ten* strategy. Start at 245. Count on to the nearest ten. Then count on by tens and by ones.



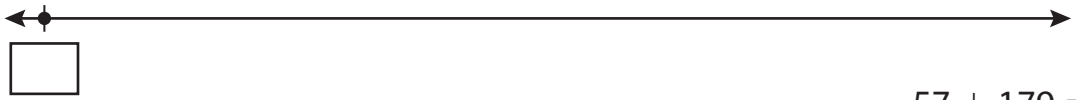
245 + 38 = _____

Show and Grow

1. Use the *count on* strategy to find 368 + 24.

368 + 24 = _____

2. Use the *make a ten* strategy to find 57 + 179.



57 + 179 = _____

Name _____

Apply and Grow: Practice

3. Use the *count on* strategy to find 47 + 216.

47 + 216 = _____

4. Use the *make a ten* strategy to find 478 + 64.

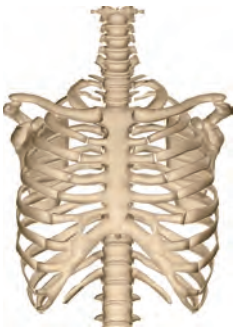
478 + 64 = _____

Find the sum.

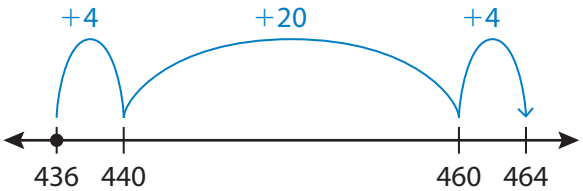
5. 395 + 82 = _____

6. 653 + 109 = _____

7. Humans have 24 rib bones and 182 other types of bones. How many bones do humans have in all?



8. MP **Structure** Write the equation shown by the number line.



9. MP **Structure** Show two different ways to find 225 + 39 using a number line.

Think and Grow: Modeling Real Life

The Leaning Tower of Pisa has 294 steps. A visitor climbs 156 steps, takes a break, and then climbs 78 more steps. Does the visitor reach the top of the tower?

Addition equation:

Model: ◄——————————►

The visitor _____ reach the top of the tower.

Show and Grow

10. A book has 216 pages. You have already read 167 pages. You read 49 more pages. Do you finish reading the book?

11. **DIG DEEPER!** A puzzle has 350 pieces. You put 95 pieces together. Your friend puts 185 pieces together. Do you and your friend complete the puzzle? If not, how many pieces are left?

12. A music library has 483 songs. You listen to 162 different songs one week and 171 more songs the next week. How many songs are left?

Name _____

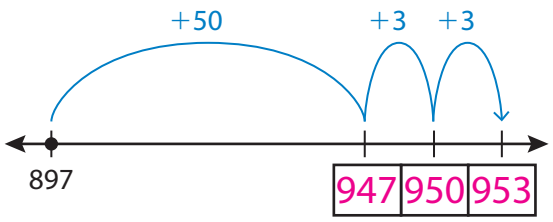
Homework & Practice 8.2

Learning Target: Use a number line to find a sum.

Example Find 897 + 56.

One Way:

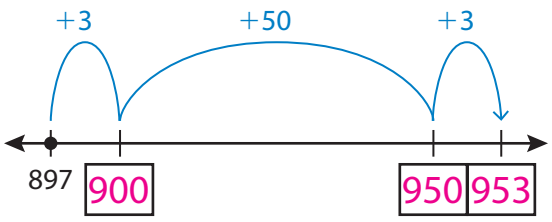
Use the *count on* strategy. Start at 897. Count on by tens, then by ones.



897 + 56 = 953

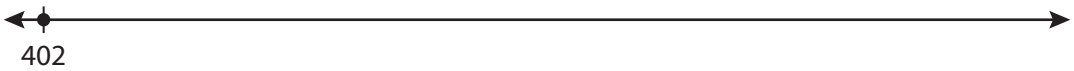
Another Way:

Use the *make a ten* strategy. Start at 897. Count on to the nearest ten. Then count on by tens and by ones.



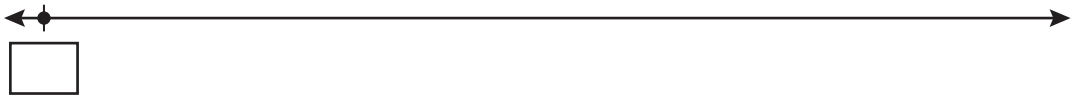
897 + 56 = 953

1. Use the *count on* strategy to find 402 + 39.



402 + 39 = _____

2. Use the *make a ten* strategy to find 81 + 647.



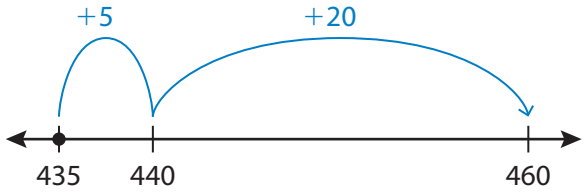
81 + 647 = _____

Find the sum.

3. 532 + 54 = _____

4. 718 + 226 = _____

5. **YOU BE THE TEACHER** Your friend uses a number line to find 435 + 27. Is your friend correct? Explain.



435 + 27 = 460

6. **YOU BE THE TEACHER** Your friend says he can find 64 + 691 by starting at 691 on a number line because of the Associative Property of Addition. Is your friend correct? Explain.

7. **Modeling Real Life** Your cousin needs to write a 400-word essay. She writes 318 words during class. She finishes her essay by writing 94 words at home. Does your cousin's essay have enough words?

8. **DIG DEEPER!** There are 275 apartments in an apartment building. There are 203 two-bedroom apartments rented, and 56 one-bedroom apartments rented. How many apartments are *not* rented?

Review & Refresh

Find the quotient.

9. 18 ÷ 6 = _____

10. 32 ÷ 8 = _____

11. 72 ÷ 9 = _____

Name _____

Use Mental Math to Add 8.3

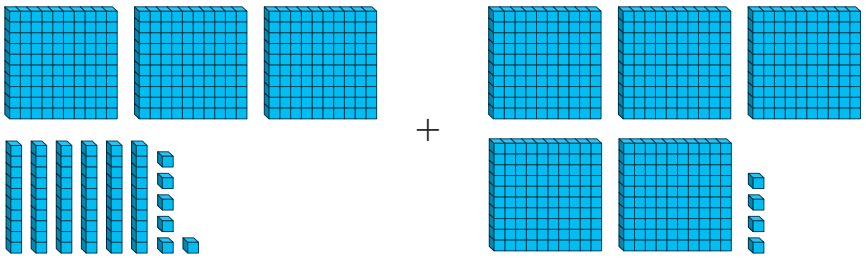
Learning Target: Use mental math to find a sum.

Success Criteria:

- I can use compensation to add.
- I can use the *make a ten* strategy to add.
- I can explain how to change one addend to a decade number or compatible number.

Explore and Grow

What addition problem is shown? How can you find the sum?



_____ + _____ = _____

MP **Repeated Reasoning** Show how to find 402 + 248.

Think and Grow: Mental Math Strategies for Addition

Example Find 247 + 328.

Use compensation to add.

$$\begin{array}{r} 247 \;+\; 3 \\ +\;328 \;-\; 3 \end{array} \longrightarrow \begin{array}{r} 250 \\ +\;325 \\ \hline \square \end{array}$$

So, 247 + 328 = _____.

Example Find 119 + 163.

Make a ten and count on to add.

119 + 163 = 119 + (1 + 100 + 60 + 2)

= _____ + 100 + 60 + 2

= _____ + 60 + 2

= _____ + 2

= _____

So, 119 + 163 = _____.

Show and Grow

1. Use compensation to find 322 + 158.

$$\begin{array}{r} 322 \;-\; \_\_\_\_ \\ +\;158 \;+\; \_\_\_\_ \end{array} \longrightarrow \begin{array}{r} 320 \\ +\;160 \\ \hline \square \end{array}$$

So, 322 + 158 = _____.

2. Make a ten and count on to find 695 + 187.

695 + 187 = 695 + (5 + 100 + 80 + 2)

= _____ + 100 + 80 + 2

= _____ + 80 + 2

= _____ + 2

= _____

Name _____

Apply and Grow: Practice

3. Use compensation to find the sum.

604 + 275 = ?

$-$ [ ] + [ ]

[ ] + [ ] = _____

So, 604 + 275 = _____.

4. Make a ten and count on to find the sum.

359 + 318 = ?

359 + _____ = 360

360 + _____ = 660

660 + _____ = _____

So, 359 + 318 = _____.

Use mental math to find the sum.

5. 436 + 248 = _____	**6.** 795 + 102 = _____	**7.** 503 + 71 = _____
8. 589 + 407 = _____	**9.** 734 + 97 = _____	**10.** 352 + 164 = _____
11. 297 + 211 = _____	**12.** 426 + 364 = _____	**13.** 159 + 104 = _____

14. A community shelter collects 101 shirts and 109 pairs of pants from a clothing drive. How many clothing items does the community shelter collect?

15. MP **Number Sense** Descartes wants to use compensation to find 238 + 127. Which numbers could he use?

240 125 130 230

Think and Grow: Modeling Real Life

A company manager has $900. Does he have enough money to buy the laptop and the cell phone?

Addition equation:

Compare:

The manager _____ have enough money.

Show and Grow

16. A USB drive holds 600 photos. You have 279 photos on a digital camera and 337 photos on a cell phone. Can the USB drive hold all of your photos?

17. A school board president has $1,000. Which two items can she buy?

Swing Set

Seesaw

Dome Climber

DIG DEEPER! The president buys the two items. How much money does she have left?

Name _____

Homework & Practice 8.3

Learning Target: Use mental math to find a sum.

Example Find 485 + 103.

Use compensation to make compatible numbers.

485 + 103 = ?

+ 3 − 3

488 + 100 = 588

So, 485 + 103 = 588.

Example Find 307 + 245.

Make a ten and count on to add.

307 + 245 = 307 + (3 + 200 + 40 + 2)

= 310 + 200 + 40 + 2

= 510 + 40 + 2

= 550 + 2

= 552

So, 307 + 245 = 552.

Use compensation to find the sum.

1. 248 + 137 = ?

\+ ☐ − ☐

☐ + ☐ = _____

So, 248 + 137 = _____.

2. 401 + 165 = ?

− ☐ + ☐

☐ + ☐ = _____

So, 401 + 165 = _____.

Make a ten and count on to find the sum.

3. 506 + 369 = ?

506 + 369 = 506 + (4 + 300 + 60 + 5)

= _____ + 300 + 60 + 5

= _____ + 60 + 5

= _____ + 5

= _____

So, 506 + 369 = _____.

4. 617 + 348 = ?

617 + 348 = 617 + (3 + 300 + 40 + 5)

= _____ + 300 + 40 + 5

= _____ + 40 + 5

= _____ + 5

= _____

So, 617 + 348 = _____.

Use mental math to find the sum.

5. 478 + 219 = _____ | **6.** 503 + 64 = _____ | **7.** 288 + 242 = _____

8. **Structure** Explain how to make a ten to find the sum.

$$\begin{array}{r} 738 \\ +\ 126 \\ \hline \end{array}$$

9. **Writing** How is compensation similar to the *make a ten* strategy? How is it different?

10. **Modeling Real Life** A binder holds 250 sheets of paper. You have 107 science papers and 142 math papers. Can the binder hold all of your papers?

11. **Modeling Real Life** A school nurse has $450. Which two items can she buy?

Stethoscope

Thermometer

Digital Scale

DIG DEEPER! The school nurse buys the two items. How much money does she have left?

Review & Refresh

12. It costs $1 to get into each football game. Newton buys a chicken wrap for $2 and a drink for $1 each game. How much money does Newton spend in 4 games?

Name _____

Use Partial Sums to Add 8.4

Learning Target: Use partial sums to find a sum.

Success Criteria:

- I can write addends in expanded form.
- I can add to find the hundreds, tens, and ones.
- I can add the partial sums.

Explore and Grow

Model each number. Draw to show each model.

	Hundreds	Tens	Ones
341			
227			

How can you use the models to find 341 + 227?

MP **Reasoning** How can breaking apart addends help you add three-digit numbers?

Think and Grow: Use Partial Sums to Add

Example Find 356 + 408.

Step 1: Write each number in expanded form.

Step 2: Find the partial sums.

Step 3: Add the partial sums.

$$\begin{aligned} 356 &= 300 + 50 + 6 \\ +\ 408 &= 400 + 8 \\ &\overline{\qquad\qquad} \\ &700 + 50 + 14 \\ &700 + 50 + 14 = \_\_\_\_ \end{aligned}$$

So, 356 + 408 = _____.

Show and Grow

Use partial sums to add.

1. $319 = \square + \square + \square$

$+\ 234 = \square + \square + \square$

_____ + _____ + _____ = _____ So, 319 + 234 = _____.

2. $568 = \square + \square + \square$

$+\ 173 = \square + \square + \square$

_____ + _____ + _____ = _____ So, 568 + 173 = _____.

3. 424
+ 450

4. 281
+ 365

5. 127
+ 609

6. 276
+ 39

Name _____

Apply and Grow: Practice

Use partial sums to add.

7.
$$\begin{array}{r} 759 \\ +\ 202 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 864 \\ +\ 131 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 387 \\ +\ 94 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 560 \\ +\ 273 \\ \hline \end{array}$$

11. $498 + 375 =$ _____

12. $209 + 158 =$ _____

13. The officers from a police department respond to 241 calls on Saturday. They respond to 178 calls on Sunday. How many calls do they respond to on Saturday and Sunday in all?

14. DIG DEEPER! Explain why there is a 0 in the tens place of the sum.

$$\begin{array}{rcl} 436 & = & 400 + 30 + 6 \\ +\ 367 & = & 300 + 60 + 7 \\ \hline & & 700 + 90 + 13 = 803 \end{array}$$

Think and Grow: Modeling Real Life

A giant panda weighs 696 pounds less than a polar bear. How much does the polar bear weigh?

Addition equation:

Polar bear

Giant panda: 263 pounds

The polar bear weighs _____ pounds.

Show and Grow

15. A herd of wildebeests has 258 fewer members than a herd of zebras has. There are 335 wildebeests in the herd. How many zebras are in their herd?

16. There are three candidates in an election. Candidate A receives 184 fewer votes than Candidate B. Who wins the election?

Candidate	Number of Votes
A	347
B	?
C	489

17. DIG DEEPER! You, your friend, and your cousin play a video game. Your friend scores 161 fewer points than you. Your cousin scores 213 more points than your friend. What is each player's score? Who wins?

Player	Points
You	?
Friend	579
Cousin	?

Name _____

Homework & Practice 8.4

Learning Target: Use partial sums to add.

Example Find 574 + 286.

Step 1: Write each number in expanded form.

$$\begin{aligned} 574 &= 500 + 70 + 4 \\ +\ 286 &= 200 + 80 + 6 \\ &\quad\ 700 + 150 + 10 \end{aligned}$$

Step 2: Find the partial sums.

$700 + 150 + 10 = 860$

Step 3: Add the partial sums.

So, $574 + 286 = 860$.

Use partial sums to add.

1.

$$\begin{aligned} 479 &= \square + \square + \square \\ +\ 356 &= \square + \square + \square \end{aligned}$$

_____ + _____ + _____ = _____ So, 479 + 356 = _____.

2. $\begin{array}{r} 674 \\ +\ 321 \\ \hline \end{array}$

3. $\begin{array}{r} 396 \\ +\ 278 \\ \hline \end{array}$

4. 564 + 218 = _____

5. 190 + 123 = _____

6. **YOU BE THE TEACHER** Your friend uses partial sums to find $205 + 124$. Is your friend correct? Explain.

$$\begin{aligned} 205 &= 200 + 50 \\ +\ 124 &= 100 + 20 + 4 \\ &= 300 + 70 + 4 = 374 \end{aligned}$$

7. **Patterns** Write and solve the next problem in the pattern.

$$\begin{array}{r} 316 \\ +\ 178 \\ \hline \end{array} \qquad \begin{array}{r} 416 \\ +\ 178 \\ \hline \end{array} \qquad \begin{array}{r} \square \\ +\ \square \\ \hline \square \end{array}$$

8. **Modeling Real Life** There are worker bees and drone bees in a beehive. A hive has 268 fewer drones than workers. There are 351 drone bees. How many worker bees are there?

9. **Modeling Real Life** Three athletes compete in Olympic weight lifting. Weight lifter A lifts 104 fewer pounds than Weight lifter B. Who lifts the most weight?

Weight Lifter	Weight Lifted (pounds)
A	368
B	?
C	427

Review & Refresh

Circle the value of the underlined digit.

10. 75<u>2</u>	200	2	20
11. <u>4</u>31	40	4	400
12. 80<u>9</u>	0	100	10

Name _____

Add Three-Digit Numbers 8.5

Learning Target: Add three-digit numbers.

Success Criteria:

- I can round to estimate a sum.
- I can add three-digit numbers.
- I can use an estimate to check whether my answer is reasonable.

Explore and Grow

Model the equation. Draw your model. Then find the sum.

$195 + 308 =$ _____

MP **Reasoning** How can you use an estimate to check whether your answer is reasonable?

Think and Grow: Add Three-Digit Numbers

Example Find 236 + 378. Check whether your answer is reasonable.

Step 1: Estimate. Round each addend to the nearest hundred.

$$\begin{array}{rcl} 236 & \longrightarrow & 200 \\ +\ 378 & \longrightarrow & +\ 400 \\ \hline & & \square \end{array}$$

The sum is *about* _____.

Step 2: Find the sum. Add the ones, then the tens, then the hundreds.

$$\begin{array}{r} \square\square \\ 2\ 3\ 6 \\ +\ 3\ 7\ 8 \\ \hline \square \end{array}$$

Remember to regroup if there are more than 10 ones or 10 tens.

Step 3: Check. _____ is close to _____, so the answer is reasonable.

Show and Grow

Find the sum. Check whether your answer is reasonable.

1. Estimate: _____

$$\begin{array}{r} 457 \\ +\ 133 \\ \hline \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 269 \\ +\ 354 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 560 \\ +\ 274 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 345 \\ +\ 286 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 129 \\ +\ 668 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} 383 \\ +\ 539 \\ \hline \end{array}$$

Name _____

Apply and Grow: Practice

Find the sum. Check whether your answer is reasonable.

7. Estimate: _____

$$\begin{array}{r} 803 \\ +\ 179 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 608 \\ +\ 239 \\ \hline \end{array}$$

9. Estimate: _____

$$\begin{array}{r} 427 \\ +\ 385 \\ \hline \end{array}$$

10. Estimate: _____

$$\begin{array}{r} 401 \\ +\ 109 \\ \hline \end{array}$$

11. Estimate: _____

$$\begin{array}{r} 265 \\ +\ 157 \\ \hline \end{array}$$

12. Estimate: _____

$$\begin{array}{r} 375 \\ +\ 64 \\ \hline \end{array}$$

13. Estimate: _____

$469 + 284 =$ _____

14. Estimate: _____

$580 + 246 =$ _____

15. Estimate: _____

$796 + 135 =$ _____

16. A truck driver travels 428 miles on Monday. He travels 473 miles on Tuesday. How many miles does he travel in all on Monday and Tuesday?

17. MP **Reasoning** Your friend finds a sum. Is her answer reasonable? If not, describe her mistake.

$$\begin{array}{r} 119 \\ +\ 187 \\ \hline 396 \end{array}$$

Think and Grow: Modeling Real Life

A construction team builds an 825-meter-long boardwalk on a beach. The team builds 408 meters one week and 377 meters the next week. Is the boardwalk complete?

Addition equation:

The boardwalk _____ complete.

Show and Grow

18. A road crew repaves the road on a 547-meter-long bridge. The crew repaves 318 meters the first day and 229 meters the second day. Is the road on the bridge completely repaved?

19. A family drives from St. Louis to Orlando for a vacation. The family drives 363 miles the first day and 386 miles the second day. How many miles does the family have left to drive?

20. Which booth had more visitors in all?

School Fair Booth Visitors		
	Dunking Booth	**Photo Booth**
Day 1	468	527
Day 2	416	374

Name _____

Homework & Practice 8.5

Learning Target: Add three-digit numbers.

Example Find 706 + 185. Check whether your answer is reasonable.

Step 1: Estimate. Round each addend to the nearest ten.

$$\begin{array}{rcl} 706 & \longrightarrow & 710 \\ +\ 185 & \longrightarrow & +\ 190 \\ & & \boxed{900} \end{array}$$

The sum is *about* 900.

Step 2: Find the sum.

$$\begin{array}{r} \boxed{1} \\ 706 \\ +\ 185 \\ \hline \boxed{891} \end{array}$$

Step 3: Check. 891 is close to 900, so the answer is reasonable.

Find the sum. Check whether your answer is reasonable.

1. Estimate: _____

$$\begin{array}{r} 493 \\ +\ 142 \\ \hline \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 763 \\ +\ 58 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 308 \\ +\ 273 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 276 \\ +\ 138 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 532 \\ +\ 167 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} 680 \\ +\ 296 \\ \hline \end{array}$$

7. Estimate: _____

595 + 280 = _____

8. Estimate: _____

419 + 295 = _____

9. Estimate: _____

498 + 305 = _____

10. **Open-Ended** Complete the addends so you need to regroup to add. Then find the sums.

$$\begin{array}{r} 4\ 7\ 9 \\ +\ 2\ 8\ \square \\ \hline \end{array} \qquad \begin{array}{r} 6\ \square\ 7 \\ +\ 1\ 3\ 5 \\ \hline \end{array}$$

11. DIG DEEPER! Find the missing digits.

$$\begin{array}{r} 1\ 0\ 7 \\ +\ 3\ 5\ \square \\ \hline 4\ 6\ 6 \end{array} \qquad \begin{array}{r} 7\ \square\ 8 \\ +\ 2\ 3\ 4 \\ \hline 9\ 8\ 2 \end{array} \qquad \begin{array}{r} 6\ 7\ 0 \\ +\ \square\ 9\ 2 \\ \hline 9\ 6\ 2 \end{array} \qquad \begin{array}{r} 8\ \square\ 9 \\ +\ 1\ 7\ 3 \\ \hline 9\ 8\ \square \end{array}$$

12. **Modeling Real Life** Newton wants to complete a 770-mile hike in 2 months. He hikes 423 miles the first month and 347 miles the second month. Does he complete the hike?

13. **Modeling Real Life** You ship a package 750 miles from San Diego to Salt Lake City. The package is now in Las Vegas. How many miles are left until your package is delivered?

Review & Refresh

Find the quotient.

14. $10\overline{)100}$ **15.** $5\overline{)45}$ **16.** $2\overline{)14}$ **17.** $10\overline{)80}$

18. Divide 25 by 5. **19.** Divide 30 by 10. **20.** Divide 8 by 2.

Name _____

Add Three or More Numbers

8.6

Learning Target: Add up to four numbers.

Success Criteria:

- I can round to estimate a sum.
- I can identify compatible numbers.
- I can find a sum and check whether it is reasonable.

Explore and Grow

Find the sum of the numbers. Which two numbers should you add first?

348 478 152

_____ + _____ + _____ = _____

517 117 283

_____ + _____ + _____ = _____

Reasoning Why did you choose those numbers? Compare your strategy to your partner's strategy.

Think and Grow: Add Three or More Numbers

Example Find 138 + 221 + 176 + 92. Check whether your answer is reasonable.

Step 1: Estimate. Round each addend to the nearest ten.

140 + 220 + 180 + 90 = _____

The sum is *about* _____.

Look for compatible digits to help you add.

Step 2: Find the sum.
Add the ones,
then the tens,
then the hundreds.

	□	□	
	1	3	8
	2	2	1
	1	7	6
+		9	2
	□		

Think: 8 + 2 = 10

Step 3: Check. _____ is close to _____, so the answer is reasonable.

Show and Grow

Find the sum. Check whether your answer is reasonable.

1. Estimate: _____

342
73
+ 267

2. Estimate: _____

191
452
+ 206

3. Estimate: _____

65
98
+ 637

4. Estimate: _____

241
394
85
+ 193

5. Estimate: _____

136
51
64
+ 410

6. Estimate: _____

105
113
222
+ 307

Name _____

Apply and Grow: Practice

Find the sum. Check whether your answer is reasonable.

7. Estimate: _____

557
79
+ 283

8. Estimate: _____

160
382
+ 357

9. Estimate: _____

35
68
+ 827

10. Estimate: _____

153
235
458
+ 67

11. Estimate: _____

549
86
31
+ 197

12. Estimate: _____

181
629
140
+ 23

13. Estimate: _____

213
208
462
+ 111

14. Estimate: _____

108
172
200
+ 263

15. Estimate: _____

259
233
223
+ 147

16. MP **Number Sense** Use the Associative Property of Addition to find (345 + 234) + 206.

17. **YOU BE THE TEACHER** Your friend finds 364 + 109 + 27. Is your friend correct? Explain.

```
  11
 364
 109
+ 27
 743
```

Think and Grow: Modeling Real Life

An elevator has a weight limit of 1,000 pounds. A 186-pound man has three 265-pound boxes to deliver. Can he bring all 3 boxes on the elevator at once?

Understand the problem:

Make a plan:

Solve:

He _____ bring all 3 boxes on the elevator at once.

Show and Grow

18. An auditorium has 650 seats. 175 students from each of 3 schools compete in a math competition. 68 teachers assist. Are there enough seats for all of the students and teachers?

19. DIG DEEPER! Four students at a school organize a petition for more lunch food options. They need 500 signatures. How many more signatures do they need?

Student	Number of Signatures
A	77
B	108
C	112
D	96

Name _____

Homework & Practice 8.6

Learning Target: Add up to four numbers.

Example Find 374 + 337 + 63 + 215. Check whether your answer is reasonable.

Step 1: Estimate. Round each addend to the nearest hundred.

400 + 300 + 100 + 200 = 1,000 The sum is *about* 1,000.

Step 2: Find the sum.

$$\begin{array}{r} \boxed{1}\,\boxed{1} \\ 374 \\ 337 \\ 63 \\ +\ 215 \\ \hline \boxed{989} \end{array}$$

Think: 7 + 3 = 10

Step 3: Check. 989 is close to 1,000, so the answer is reasonable.

Find the sum. Check whether your answer is reasonable.

1. Estimate: _____

$$\begin{array}{r} 15 \\ 398 \\ +\ 526 \\ \hline \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 65 \\ 41 \\ +\ 786 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 409 \\ 87 \\ +\ 463 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 302 \\ 253 \\ 169 \\ +\ 18 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 353 \\ 121 \\ 154 \\ +\ 116 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} 213 \\ 270 \\ 251 \\ +\ 139 \\ \hline \end{array}$$

7. **Structure** Which problem can you solve *without* regrouping?

611	302	123	401
34	124	151	327
+ 27	+ 63	+ 72	+ 162

8. **Reasoning** You add 602 + 125 + 231. Your friend adds 231 + 602 + 125. Do you both get the same answer? Use an addition property to explain.

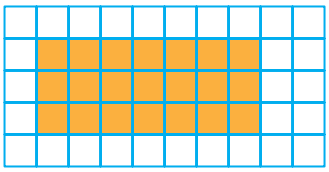
9. **Modeling Real Life** A firefighter's ladder has a weight limit of 750 pounds. One firefighter weighs 196 pounds. Another firefighter weighs 243 pounds. They each have 67 pounds of gear. If both firefighters wear their gear, can they climb the ladder at the same time?

10. **DIG DEEPER!** Your principal agrees to make a lip-sync video if the school's social media page reaches 1,000 likes in 5 days. How many more likes does the school's page need?

Day	Number of Likes
1	573
2	168
3	201
4	47

Review & Refresh

11. Find the area of the shape.



☐ = 1 square centimeter

Area = _____

Name _____

Use Number Lines to Subtract

8.7

Learning Target: Use a number line to find a difference.

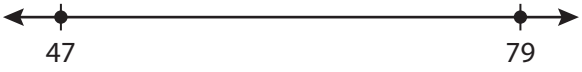
Success Criteria:

- I can use the *count back* strategy to subtract on a number line.
- I can use the *count on* strategy to subtract on a number line.

Explore and Grow

Color to find 79 − 47. Then model your jumps on the number line.

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



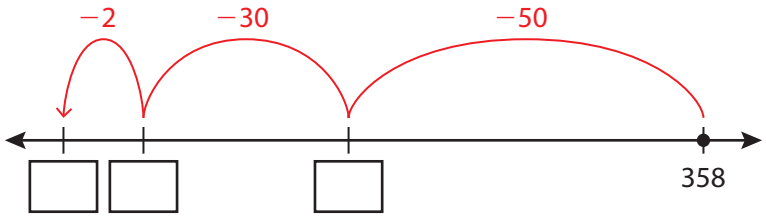
79 − 47 = _____

MP **Reasoning** How can finding 79 − 47 help you find 379 − 47?

Think and Grow: Subtracting on a Number Line

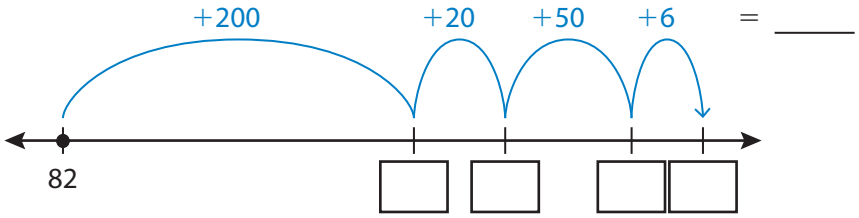
Example Find 358 − 82.

One Way: Use the *count back* strategy. Start at 358.
Count back by tens, then by ones.



358 − 82 = _____

Another Way: Use the *count on* strategy. Start at 82.
Count on until you reach 358.



358 − 82 = _____

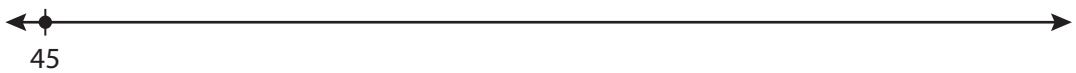
Show and Grow

1. Use the *count back* strategy to find 273 − 36.

273 − 36 = _____

---

2. Use the *count on* strategy to find 124 − 45.



124 − 45 = _____

Name _____

Apply and Grow: Practice

3. Use the *count back* strategy to find 961 − 38.

961 − 38 = _____

4. Use the *count on* strategy to find 853 − 77.

853 − 77 = _____

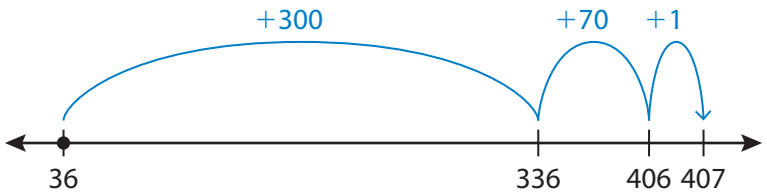
Find the difference.

5. 316 − 24 = _____

6. 548 − 113 = _____

7. Your friend knows 154 words in Italian. You want to know just as many words as your friend. So far, you have learned 73 words. How many words do you have left to learn?

8. MP **Structure** Write the equation shown by the number line.



_____ − _____ = _____

Think and Grow: Modeling Real Life

Each member of a marching band and a football team is awarded a ribbon. The marching band has 123 members. The football team has 66 members. How many more ribbons are needed for the marching band than for the football team?

Subtraction equation:

Model:

_____ more ribbons are needed for the marching band.

Show and Grow

9. A marine biologist feeds 435 pounds of fish to an orca and 50 pounds of fish to a sea lion. How many more pounds did the orca eat than the sea lion?

10. There are 620 paper lanterns for a festival. Some are let go. There are 42 left. How many paper lanterns were let go?

11. DIG DEEPER! There are some guests at an amusement park. 387 of them leave when it rains. 474 of them stay. How many guests were there before it rained?

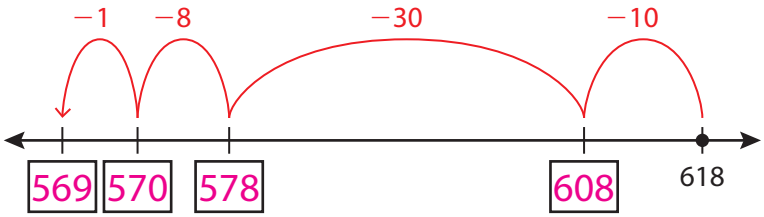
Name _____

Homework & Practice 8.7

Learning Target: Use a number line to find a difference.

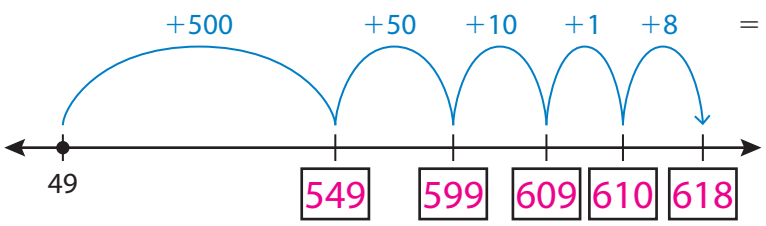
Example Find 618 − 49.

One Way: Use the *count back* strategy.



618 − 49 = 569

Another Way: Use the *count on* strategy.



618 − 49 = 569

1. Use the *count back* strategy to find 232 − 53.

232 − 53 = _____

2. Use the *count on* strategy to find 796 − 81.

796 − 81 = _____

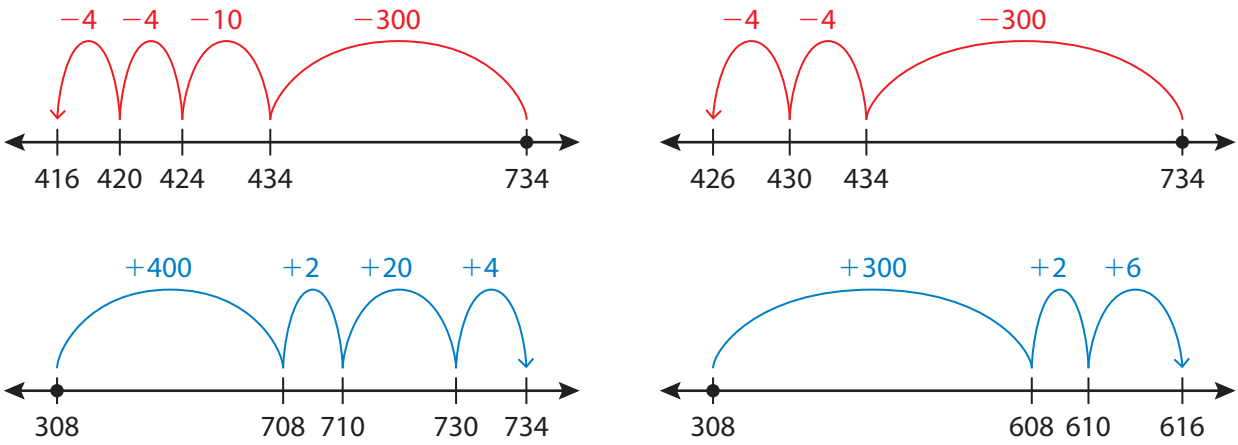
Find the difference.

3. 474 − 19 = _____

4. 615 − 204 = _____

5. **Writing** Write and solve a subtraction word problem using 995 and 238.

6. DIG DEEPER! Which number lines can you use to find 734 − 308?



7. **Modeling Real Life** You take 107 pictures on a field trip to a zoo. Your friend takes 73 pictures. How many more pictures do you take than your friend?

8. **Modeling Real Life** An author has 350 copies of her book. Some are signed. 115 copies are *not* signed. How many copies are signed?

Review & Refresh

Find the quotient.

9. Divide 25 by 5.

10. Divide 40 by 4.

11. Divide 72 by 8.

Name _____

Use Mental Math to Subtract

8.8

Learning Target: Use mental math to find a difference.

Success Criteria:

- I can explain how to change both numbers to use compensation to subtract.
- I can explain how to change one number to use compensation to subtract.

Explore and Grow

Use mental math to solve.

$750 - 300 =$ _____	$750 - 300 =$ _____	$750 - 300 =$ _____
$650 - 200 =$ _____	$700 - 250 =$ _____	$740 - 290 =$ _____

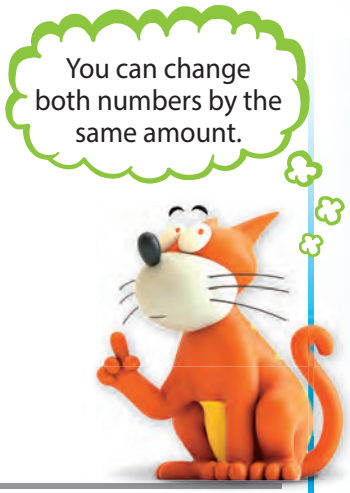
What patterns do you notice? Explain.

MP **Repeated Reasoning** Explain how to find $745 - 295$.

Think and Grow: Mental Math Strategies for Subtraction

Example Find 433 − 198.

One Way: Use compensation to change both numbers.



$$\begin{array}{r} 433 + 2 \\ -\ 198 + 2 \\ \hline \end{array} \rightarrow \begin{array}{r} 435 \\ -\ 200 \\ \hline \square \end{array}$$

So, 433 − 198 = _____.

198 is close to 200, and it is easier to subtract 200.

Another Way: Use compensation to change one number.

$$\begin{array}{r} 433 \\ -\ 198 + 2 \\ \hline \end{array} \rightarrow \begin{array}{r} 433 \\ -\ 200 \\ \hline 233 \end{array}$$

You subtracted 2 more than 198, so you must add 2 to the answer.

$$\begin{array}{r} 233 \\ +\ \ 2 \\ \hline \square \end{array}$$

So, 433 − 198 = _____.

Show and Grow

Use compensation to find the difference.

1. $\begin{array}{r} 384 + \_\_\_\_ \\ -\ 146 + \_\_\_\_ \\ \hline \end{array} \rightarrow \begin{array}{r} 388 \\ -\ 150 \\ \hline \square \end{array}$

So, 384 − 146 = _____.

2. $\begin{array}{r} 792 + \_\_\_\_ \\ -\ 455 + \_\_\_\_ \\ \hline \end{array} \rightarrow \begin{array}{r} 797 \\ -\ 460 \\ \hline \square \end{array}$

So, 792 − 455 = _____.

3. $\begin{array}{r} 626 \\ -\ 219 + \_\_\_\_ \\ \hline \end{array} \rightarrow \begin{array}{r} 626 \\ -\ 220 \\ \hline 406 \end{array}$ $\begin{array}{r} 4\ 0\ 6 \\ +\ \ \square \\ \hline \square \end{array}$

So, 626 − 219 = _____.

Name _____

Apply and Grow: Practice

Use compensation to find the difference.

4. $900 + \_\_\_\_ \rightarrow 901$

$-\ 699 + \_\_\_\_ \quad -\ 700$

$\square$

So, $900 - 699 =$ _____.

5. $923 \rightarrow 923 \quad 8\ 0\ 3$

$-\ 117 + \_\_\_\_ \quad -\ 120 + \square$

803

$\square$

So, $923 - 117 =$ _____.

Use mental math to find the difference.

6. $643 - 115 =$ _____

7. $863 - 257 =$ _____

8. $768 - 543 =$ _____

9. $688 - 414 =$ _____

10. $499 - 106 =$ _____

11. $495 - 162 =$ _____

12. $874 - 515 =$ _____

13. $637 - 228 =$ _____

14. $986 - 432 =$ _____

15. A movie theater has 225 seats. 108 seats are taken. How many seats are *not* taken?

16. MP **Reasoning** Your friend starts to find $741 - 295$. What is the next step? Explain.

$741 \rightarrow 741$

$-\ 295 + 5 \quad -\ 300$

441

Think and Grow: Modeling Real Life

A softball coach has $325 for new equipment. She buys the catching gear. Does she have enough money left to buy the bat?

Subtraction equation:

Compare:

The coach _____ have enough money to buy the bat.

Show and Grow

17. A store owner has 550 T-shirts. He sells 333 of them. Then he receives an order for 168 T-shirts. Does he have enough T-shirts to complete the order?

18. The manager of a gaming center has $700 for new electronics. She buys the game system. Does she have enough money left for either of the other two items? If so, which one?

Television

Game System

Bundle of Games

DIG DEEPER! How much more money does the manager need to buy both the television and the bundle of games?

Name _____

Homework & Practice 8.8

Learning Target: Use mental math strategies to find a difference.

Example

Find 778 − 349.

Use compensation to change both numbers.

$$\begin{array}{r} 778 + 1 \\ -\ 349 + 1 \end{array} \rightarrow \begin{array}{r} 779 \\ -\ 350 \\ \hline 429 \end{array}$$

So, 778 − 349 = 429.

Example

Find 665 − 206.

Use compensation to change one number.

$$\begin{array}{r} 665 \\ -\ 206 + 4 \end{array} \rightarrow \begin{array}{r} 665 \\ -\ 210 \\ \hline 455 \end{array} \quad \begin{array}{r} 4\ 5\ 5 \\ +\ \boxed{4} \\ \hline \boxed{4\ 5\ 9} \end{array}$$

So, 665 − 206 = 459.

Use compensation to find the difference.

1. $\begin{array}{r} 596 + \_\_\_\_ \\ -\ 317 + \_\_\_\_ \end{array} \rightarrow \begin{array}{r} 599 \\ -\ 320 \\ \hline \square \end{array}$

So, 596 − 317 = _____.

2. $\begin{array}{r} 685 \\ -\ 214 + \_\_\_\_ \end{array} \rightarrow \begin{array}{r} 685 \\ -\ 220 \\ \hline 465 \end{array} \quad \begin{array}{r} 4\ 6\ 5 \\ +\ \square \\ \hline \square \end{array}$

So, 685 − 214 = _____.

Use mental math to find the difference.

3. 782 − 489 = _____

4. 672 − 266 = _____

5. 983 − 155 = _____

6. 744 − 125 = _____

7. 967 − 619 = _____

8. 854 − 517 = _____

9. 472 − 215 = _____

10. 883 − 335 = _____

11. 575 − 198 = _____

12. **Reasoning** To find 765 − 246, Newton adds 5 to each number, and then subtracts. To find the difference, Descartes adds 4 to each number, and then subtracts. Will they both get the correct answer? Explain.

13. **Modeling Real Life** A custodian has 350 desks to clean. She cleans 124 desks on the first floor and 147 desks on the second floor. Does she clean all of the desks?

14. **Modeling Real Life** A fashion designer has $725 to spend on new supplies. She buys the sewing machine. Does she have enough money left for either of the other two items? If so, which one?

Mannequin

Fashion Design Software

Sewing Machine

DIG DEEPER! How much more money does the fashion designer need to buy both the mannequin and the fashion design software?

Review & Refresh

Draw equal groups. Then complete the equations.

15. 3 groups of 6

____ + ____ + ____ = ____

____ × ____ = ____

16. 4 groups of 9

____ + ____ + ____ + ____ = ____

____ × ____ = ____

Name _____

Subtract Three-Digit Numbers 8.9

Learning Target: Subtract three-digit numbers.

Success Criteria:

- I can round to estimate a difference.
- I can subtract three-digit numbers.
- I can use an estimate to check whether my answer is reasonable.

Explore and Grow

Model the equation. Draw to show your model. Then find the difference.

$694 - 418 =$ _____

MP **Reasoning** How can you use an estimate to check whether your answer is reasonable?

Think and Grow: Subtract Three-Digit Numbers

Example Find 604 − 215. Check whether your answer is reasonable.

Step 1: Estimate. Round each number to the nearest hundred.

$$\begin{array}{r} 604 \\ -\ 215 \end{array} \longrightarrow \begin{array}{r} 600 \\ -\ 200 \\ \hline \square \end{array}$$

The difference is *about* _____.

Step 2: Find the difference.
Subtract the ones, then the tens, then the hundreds.
There are not enough ones or tens to subtract, so regroup.

Regroup the hundreds.	Regroup the tens.	Subtract.
$\begin{array}{r} 5\ 10 \\ \cancel{6}\ \cancel{0}\ 4 \\ -\ 2\ 1\ 5 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ 5\ \cancel{10}\ 14 \\ \cancel{6}\ \cancel{0}\ \cancel{4} \\ -\ 2\ 1\ 5 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ 5\ \cancel{10}\ 14 \\ \cancel{6}\ \cancel{0}\ \cancel{4} \\ -\ 2\ 1\ 5 \\ \hline \square \end{array}$

Step 3: Check. _____ is close to _____, so the answer is reasonable.

Show and Grow

Find the difference. Check whether your answer is reasonable.

1. Estimate: _____

$$\begin{array}{r} 302 \\ -\ 166 \\ \hline \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 538 \\ -\ 371 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 490 \\ -\ 252 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 963 \\ -\ 429 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 641 \\ -\ 287 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} 832 \\ -\ 359 \\ \hline \end{array}$$

Name _____

Apply and Grow: Practice

Find the difference. Check whether your answer is reasonable.

7. Estimate: _____

$$\begin{array}{r} 518 \\ -\ 232 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 971 \\ -\ 320 \\ \hline \end{array}$$

9. Estimate: _____

$$\begin{array}{r} 565 \\ -\ 289 \\ \hline \end{array}$$

10. Estimate: _____

$$\begin{array}{r} 546 \\ -\ 341 \\ \hline \end{array}$$

11. Estimate: _____

$$\begin{array}{r} 707 \\ -\ 453 \\ \hline \end{array}$$

12. Estimate: _____

$$\begin{array}{r} 406 \\ -\ 77 \\ \hline \end{array}$$

13. Estimate: _____

552 − 381 = _____

14. Estimate: _____

725 − 146 = _____

15. Estimate: _____

800 − 486 = _____

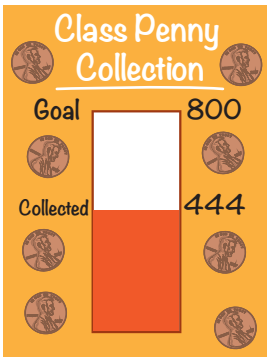
16. The number of rings on a tree is equal to its age. A redwood tree has 473 rings. A bristlecone pine tree has 806 rings. How much older is the bristlecone pine tree than the redwood tree?

17. **Writing** Explain how to regroup 408 to subtract 259.

Think and Grow: Modeling Real Life

How many more pennies does the class need to reach the goal?

Subtraction equation:

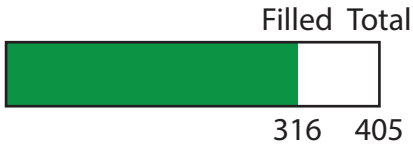


The class needs to collect _____ more pennies.

Show and Grow

18. How many more campers can attend the summer camp?

Summer Camp Openings



19. A musician wants to buy a set of speakers that costs $672. She saves $224 each month for 2 months. How much money does she still need to save?

20. **DIG DEEPER!** Newton has 442 packages to deliver. Descartes has 464. Newton delivers 174 packages, and Descartes delivers 188. Who is closer to finishing his deliveries?

Name _____

Homework & Practice 8.9

Learning Target: Subtract three-digit numbers.

Example Find 324 − 176. Check whether your answer is reasonable.

Step 1: Estimate. Round to the nearest ten.

$$\begin{array}{r} 324 \\ -\ 176 \end{array} \longrightarrow \begin{array}{r} 2\ 12 \\ \cancel{3}\ \cancel{2}\ 0 \\ -\ 1\ 8\ 0 \\ \hline \boxed{1\ 4\ 0} \end{array}$$

The difference is *about* 140.

Step 2: Subtract. There are not enough ones or tens to subtract, so regroup.

Regroup the tens.	Regroup the hundreds.	Subtract.
$\begin{array}{r} 1\ 14 \\ 3\ \cancel{2}\ \cancel{4} \\ -\ 1\ 7\ 6 \end{array}$ →	$\begin{array}{r} 11 \\ 2\ \cancel{1}\ 14 \\ \cancel{3}\ \cancel{2}\ \cancel{4} \\ -\ 1\ 7\ 6 \end{array}$ →	$\begin{array}{r} 11 \\ 2\ \cancel{1}\ 14 \\ \cancel{3}\ \cancel{2}\ \cancel{4} \\ -\ 1\ 7\ 6 \\ \hline \boxed{1\ 4\ 8} \end{array}$

Step 3: Check. 148 is close to 140, so the answer is reasonable.

Find the difference. Check whether your answer is reasonable.

1. Estimate: _____

$$\begin{array}{r} 571 \\ -\ 220 \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 421 \\ -\ 277 \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 534 \\ -\ 186 \end{array}$$

4. Estimate: _____

690 − 298 = _____

5. Estimate: _____

613 − 472 = _____

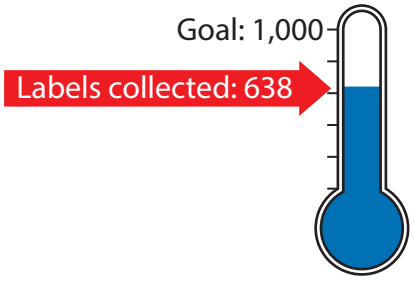
6. Estimate: _____

835 − 189 = _____

7. **YOU BE THE TEACHER** Your friend says you have to regroup every time you subtract from a number that has a zero. Is your friend correct? Explain.

8. **Modeling Real Life** How many more soup can labels does the school need to reach the goal?

School Soup Can Label Collection



9. **Modeling Real Life** Newton wants to buy a couch that costs $594. He saves $198 each month for 2 months. How much money does he still need to save?

10. **DIG DEEPER!** Find the missing digits.

$$\begin{array}{r} 964 \\ -\ 3\square 1 \\ \hline 623 \end{array} \qquad \begin{array}{r} 47\square \\ -\ 194 \\ \hline 281 \end{array} \qquad \begin{array}{r} \square 44 \\ -\ 56\square \\ \hline 281 \end{array} \qquad \begin{array}{r} \square 04 \\ -\ 452 \\ \hline 352 \end{array}$$

Review & Refresh

Round the number to the nearest ten and to the nearest hundred.

11. 64

Nearest ten: _____

Nearest hundred: _____

12. 411

Nearest ten: _____

Nearest hundred: _____

Name _____

Relate Addition and Subtraction

8.10

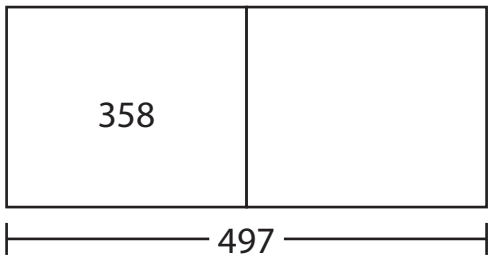
Learning Target: Use inverse operations to check answers.

Success Criteria:

- I can use addition to check a difference.
- I can use subtraction to check a sum.
- I can explain the relationship between addition and subtraction.

Explore and Grow

How can you find the missing number? How do you know you are correct?



MP **Reasoning** How are addition and subtraction related?

Think and Grow: Relate Addition and Subtraction

Inverse operations are operations that "undo" each other.
Addition and subtraction are inverse operations.

Example Find 846 − 283. Use the inverse operation to check.

$$\begin{array}{r} 846 \\ -\ 283 \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ +\ 283 \\ \hline \square \end{array}$$

Add 283 to the difference.
The sum should be 846.

Example Find 355 + 437. Use the inverse operation to check.

$$\begin{array}{r} 355 \\ +\ 437 \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ -\ 437 \\ \hline \square \end{array}$$

Subtract 437 from the sum.
The difference should be 355.

Show and Grow

Find the sum or difference. Use the inverse operation to check.

1.

$$\begin{array}{r} 682 \\ -\ 419 \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ +\ 419 \\ \hline \square \end{array}$$

2.

$$\begin{array}{r} 169 \\ +\ 745 \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ -\ 745 \\ \hline \square \end{array}$$

3.

$$\begin{array}{r} 376 \\ +\ 238 \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ -\ 238 \\ \hline \square \end{array}$$

4.

$$\begin{array}{r} 547 \\ -\ 285 \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ +\ 285 \\ \hline \square \end{array}$$

5.

$$\begin{array}{r} 463 \\ +\ 349 \\ \hline \end{array}$$

6.

$$\begin{array}{r} 790 \\ -\ 317 \\ \hline \end{array}$$

Name _____

Apply and Grow: Practice

Find the sum or difference. Use the inverse operation to check.

7.
$$\begin{array}{r} 857 \\ -\ 567 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 762 \\ +\ 143 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 653 \\ +\ 217 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 294 \\ -\ 156 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 475 \\ +\ 438 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 514 \\ -\ 386 \\ \hline \end{array}$$

13. **Which One Doesn't Belong?** Which equation does *not* belong with the other three?

$482 + 126 = 608$ $\qquad$ $126 + 482 = 608$

$608 - 482 = 126$ $\qquad$ $608 + 126 = 734$

14. **Open-Ended** Write a subtraction equation that has a difference of 381.

Think and Grow: Modeling Real Life

A kayak costs $321. A customer pays $196 for the kayak after using a gift card. How much money is the gift card worth?

Equation:

The gift card is worth $_____.

Check:

Show and Grow

15. You print 600 flyers for an event. You hand out some of them. There are 237 left. How many flyers did you hand out?

16. A building has 163 floors. You start on the 28th floor. You go up in the elevator 126 floors. Then you go down 145 floors. On which floor do you end?

17. **DIG DEEPER!** A bus travels from Boston to Washington, D.C. On the way back, the bus stops in New York City. How many miles has the bus traveled in all? How many miles does the bus have left to travel?

Name _____

Homework & Practice 8.10

Learning Target: Use inverse operations to check answers.

Example Find the sum or difference. Use the inverse operation to check.

$$\begin{array}{r} 797 \\ +\ 180 \\ \hline 977 \end{array} \quad \begin{array}{r} 977 \\ -\ 180 \\ \hline 797 \end{array} \qquad \begin{array}{r} 370 \\ -\ 130 \\ \hline 240 \end{array} \quad \begin{array}{r} 240 \\ +\ 130 \\ \hline 370 \end{array}$$

Find the sum or difference. Use the inverse operation to check.

1.

$$\begin{array}{r} 931 \\ -\ 544 \\ \hline \end{array} \quad \begin{array}{r} \\ +\ 544 \\ \hline \end{array}$$

2.

$$\begin{array}{r} 623 \\ +\ 285 \\ \hline \end{array} \quad \begin{array}{r} \\ -\ 285 \\ \hline \end{array}$$

3.

$$\begin{array}{r} 523 \\ +\ 237 \\ \hline \end{array}$$

4.

$$\begin{array}{r} 403 \\ -\ 252 \\ \hline \end{array}$$

5.

$$\begin{array}{r} 612 \\ +\ 387 \\ \hline \end{array}$$

6.

$$\begin{array}{r} 511 \\ -\ 371 \\ \hline \end{array}$$

7.

$$\begin{array}{r} 437 \\ +\ 156 \\ \hline \end{array}$$

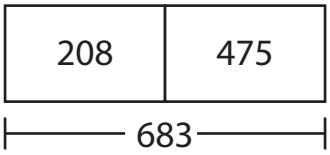
8.

$$\begin{array}{r} 726 \\ -\ 362 \\ \hline \end{array}$$

9. **YOU BE THE TEACHER** Your friend uses an inverse operation to check her answer. Is your friend correct? Explain.

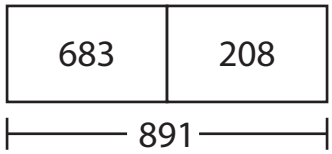
380	221
− 159	+ 380
221	601

10. **Which One Doesn't Belong?** Which does *not* belong with the other three?



$683 - 475 = 208$

$683 - 208 = 475$

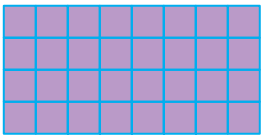


11. **Modeling Real Life** A telescope costs $169. A customer pays $119 for the telescope after using a gift card. How much money is the gift card worth?

12. **DIG DEEPER!** A train travels from Dallas to San Antonio. On the way back, the train stops in Austin. How many miles has the train traveled? How many miles does the train have left to travel?

Review & Refresh

13. Use the Distributive Property to find the area of the rectangle.



☐ = 1 square foot

$4 \times 8 =$ $4 \times (\_\_\_\_ + \_\_\_\_)$

$4 \times 8 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$4 \times 8 =$ $\_\_\_\_ + \_\_\_\_$

$4 \times 8 =$ $\_\_\_\_$

Area = $\_\_\_\_\_$

Name _____

Problem Solving: Addition and Subtraction

8.11

Learning Target: Use the problem-solving plan to solve two-step addition and subtraction word problems.

Success Criteria:

- I can understand a problem.
- I can make a plan to solve a problem using letters to represent the unknown numbers.
- I can solve a problem and check whether my answer is reasonable.

Explore and Grow

You read 150 pages in three weeks.

Week	Number of Pages Read
1	56
2	47
3	p

What does p represent?

$p =$ _____

MP **Construct Arguments** Explain to your partner how to find what n represents.

$$250 + n = 580$$

Think and Grow: Using the Problem-Solving Plan

Example Newton has 368 baseball cards. He gives away 139 of them. He buys 26 more. How many cards does he have now?

Understand the Problem

What do you know?

- Newton has _____ cards.
- He gives away _____ of them.
- He buys _____ more.

What do you need to find?

- You need to find how many _____ he has now.

Make a Plan

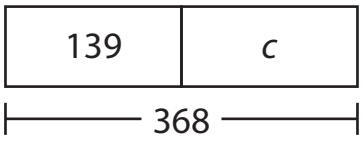
How will you solve?

- Subtract _____ from _____ to find how many _____ he has left after he gives some away.
- Then add _____ to the difference to find how many he has now.

Solve

Draw a part-part-whole model and write an equation.
Use a letter to represent the unknown number.

Step 1:



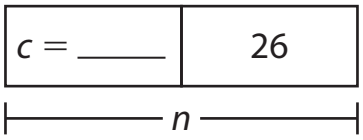
$368 - 139 = c$

c is the unknown difference.

$$\begin{array}{r} 368 \\ -\ 139 \\ \hline \square \end{array}$$

$c =$ _____

Step 2:



_____ $+ 26 = n$

n is the unknown sum.

$$\begin{array}{r} \square \\ +\ 26 \\ \hline \square \end{array}$$

$n =$ _____

Newton has _____ cards now.

Show and Grow

1. Explain how you can check whether your answer above is reasonable.

Name _____

Apply and Grow: Practice

Write equations to solve. Use letters to represent the unknown numbers. Check whether your answer is reasonable.

2. A baker makes 476 muffins. He sells 218 of them. Then he makes 390 more. How many muffins does the baker have now?

3. Newton knocks down 146 pins in his first bowling game. He knocks down 19 more pins in his second game than in his first game. How many pins does he knock down in all?

4. You are traveling to a campground that is 243 miles away. You travel 155 miles in the morning and 59 miles in the afternoon. How many more miles do you need to travel before you get to the campground?

5. There are 205 lawn tickets and 585 bleacher tickets sold for a concert. There are 680 fewer VIP tickets sold than lawn and bleacher tickets combined. How many VIP tickets are sold?

Think and Grow: Modeling Real Life

How many more people went to see the movie on Friday than on Thursday and Saturday combined?

Movie Premiere	
Day	**Number of People**
Thursday	346
Friday	897
Saturday	512

Understand the problem:

Make a plan:

Solve:

_____ more people went to see the movie on Friday than on Thursday and Saturday combined.

Show and Grow

6. How many more people used the ferry on Friday than on Saturday and Sunday combined?

Ferry Passengers	
Day	**Number of Passengers**
Friday	903
Saturday	624
Sunday	255

Explain how you can check whether your answer is reasonable.

Name _____

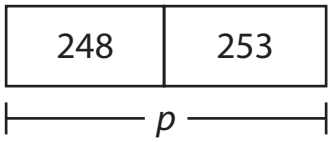
Homework & Practice 8.11

Learning Target: Use the problem-solving plan to solve two-step addition and subtraction word problems.

Example A principal has 248 blue pencils and 253 red pencils. He gives away 315 of them. How many pencils does he have now?

Think: What do you know? What do you need to find? How will you solve?

Step 1: How many pencils does the principal have in all?



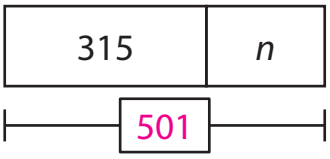
The letter *p* is the unknown sum.

$248 + 253 = p$

$$\begin{array}{r} 248 \\ +\ 253 \\ \hline 501 \end{array}$$

$p = 501$

Step 2: Use *p* to find how many pencils the principal has now.



The letter *n* is the unknown difference.

$501 - 315 = n$

$$\begin{array}{r} 501 \\ -\ 315 \\ \hline 186 \end{array}$$

$n = 186$

The principal has 186 pencils now.

Write equations to solve. Use letters to represent the unknown numbers. Check whether your answer is reasonable.

1. Newton has 387 tokens, and Descartes has 295. They use a total of 461 tokens. How many tokens do they have now?

2. There are 125 second graders and 118 third graders at a museum. There are 249 more adults than students at the museum. How many adults are at the museum?

3. You received 171 votes in a coloring contest. Your friend received 24 fewer votes than you. How many people voted for you and your friend in all?

4. **Writing** Write and solve a two-step problem that can be solved using addition or subtraction.

5. **Modeling Real Life** How many more fish were caught on Sunday than on Friday and Saturday combined?

Fishing Competition	
Day	**Number of Fish Caught**
Friday	127
Saturday	244
Sunday	564

Explain how you can check whether your answer is reasonable.

Review & Refresh

6. Use the multiplication table.

×	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

Describe the pattern in the shaded row and column.

What property explains this pattern?

Name _____

Performance Task 8

Your school holds a talent show.

1. You and your friend hand out programs to guests before the show. You each start with 250 programs. There are 114 programs left. How many programs did you and your friend hand out?

2. 75 students wait backstage to perform in the show. There are 336 children, 125 adults, and 14 teachers in the audience.

a. How many people are at the talent show in all? Explain how to use addition properties to find the sum.

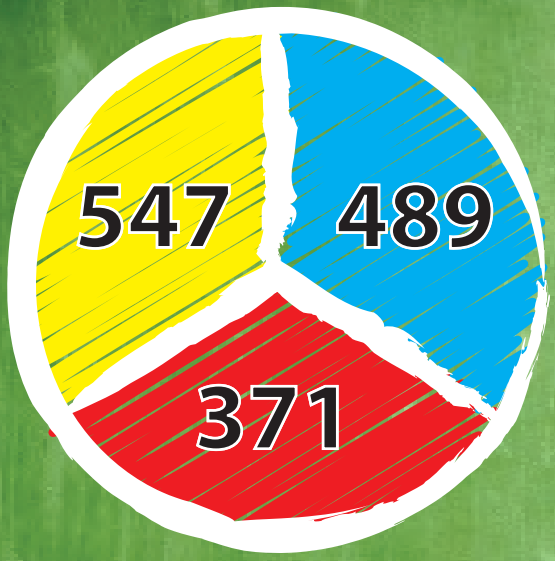
b. Four students perform in each of the first 4 acts. How many students still need to perform?

c. Each performer is given a juice box backstage. Juice boxes come in packages of 10. How many packages did the teachers buy? How many juice boxes are left?

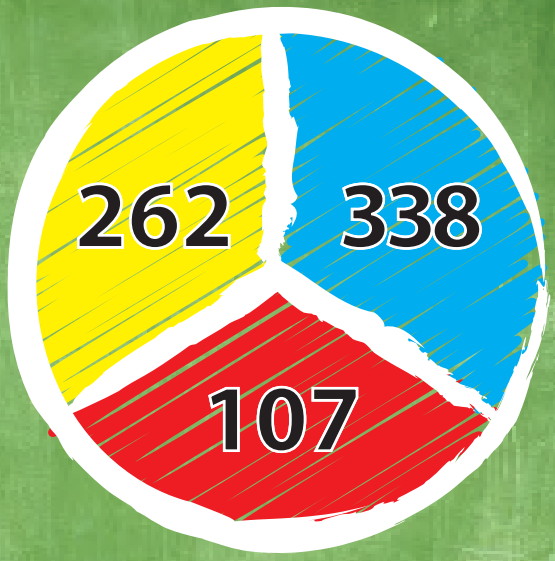
Three in a Row: Addition and Subtraction

Directions:

1. Players take turns.
2. On your turn, spin both spinners. Add or subtract the two numbers. Cover the sum or difference.
3. If the sum or difference is already covered, then you lose your turn.
4. The first player to get three counters in a row, horizontally, vertically, or diagonally, wins!



+ or −



Sums

827	633	654
709	809	596
885	751	478

Differences

227	209	33
109	151	440
285	264	382

Name _____

Chapter Practice 8

8.1 Identify Addition Properties

Identify the property.

1. $59 + 0 = 59$

2. $(14 + 32) + 6 = 14 + (32 + 6)$

3. $27 + 51 = 51 + 27$

4. MP **Structure** Which equations show the Commutative Property of Addition?

$64 + 12 = 12 + 64$

$71 + 0 = 71$

$(56 + 21) + 34 = 56 + (21 + 34)$

$26 + (41 + 4) = 4 + (26 + 41)$

8.2 Use Number Lines to Add

5. Find $648 + 37$.

$648 + 37 =$ _____

8.3 Use Mental Math to Add

Use mental math to find the sum.

6. $192 + 107 =$ _____

7. $676 + 114 =$ _____

8. $716 + 279 =$ _____

9. $501 + 468 =$ _____

10. $527 + 343 =$ _____

11. $441 + 189 =$ _____

8.4 Use Partial Sums to Add

Use partial sums to add.

12.
$$\begin{array}{r} 586 \\ +\ 107 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 647 \\ +\ 293 \\ \hline \end{array}$$

14. **Modeling Real Life** On Earth, your cousin weighs 207 pounds less than he would on Jupiter. Your cousin weighs 135 pounds on Earth. How much would he weigh on Jupiter?

8.5 Add Three-Digit Numbers

Find the sum. Check whether your answer is reasonable.

15. Estimate: _____

326 + 490 = _____

16. Estimate: _____

657 + 189 = _____

17. Estimate: _____

543 + 261 = _____

8.6 Add Three or More Numbers

Find the sum. Check whether your answer is reasonable.

18. Estimate: _____

$$\begin{array}{r} 78 \\ 433 \\ +\ 367 \\ \hline \end{array}$$

19. Estimate: _____

$$\begin{array}{r} 194 \\ 151 \\ 244 \\ +\ 231 \\ \hline \end{array}$$

20. Estimate: _____

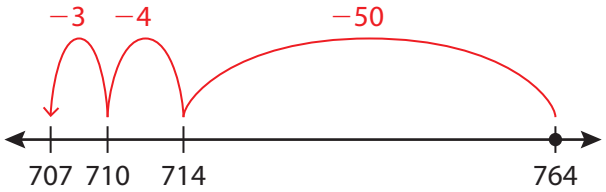
$$\begin{array}{r} 373 \\ 329 \\ 118 \\ +\ 61 \\ \hline \end{array}$$

8.7 Use Number Lines to Subtract

21. Find 856 − 29.

856 − 29 = _____

22. MP **Structure** Write the equation shown by the number line.



_____ − _____ = _____

8.8 Use Mental Math to Subtract

Use mental math to find the difference.

23. 957 − 619 = _____

24. 831 − 415 = _____

25. 876 − 366 = _____

26. 636 − 317 = _____

27. 965 − 528 = _____

28. 384 − 118 = _____

8.9 Subtract Three-Digit Numbers

Find the difference. Check whether your answer is reasonable.

29. Estimate: _____

963 − 451 = _____

30. Estimate: _____

878 − 594 = _____

31. Estimate: _____

766 − 297 = _____

32. **YOU BE THE TEACHER** Your friend finds 760 − 482. Is your friend correct? Explain.

$$\begin{array}{r} 6\ 16 \\ \cancel{7}\ \cancel{6}\ 0 \\ -\ 4\ 8\ 2 \\ \hline 2\ 8\ 2 \end{array}$$

8.10 Relate Addition and Subtraction

Find the sum or difference. Use the inverse operation to check.

33.
$$\begin{array}{r} 649 \\ +\ 227 \\ \hline \end{array}$$

34.
$$\begin{array}{r} 805 \\ -\ 517 \\ \hline \end{array}$$

8.11 Problem Solving: Addition and Subtraction

35. There are 532 dogs enrolled in police academies. 246 dogs graduate in July, and 187 dogs graduate in August. How many dogs still need to graduate?

Name _____

Cumulative Practice 1–8

1. Which numbers round to 300 when rounded to the nearest hundred?

- ☐ 298
- ☐ 309
- ☐ 347
- ☐ 246
- ☐ 358
- ☐ 263

2. You buy 18 cups of yogurt. The yogurt is sold in packs of 6 cups. How many packs of yogurt do you buy?

- Ⓐ 24 packs
- Ⓑ 12 packs
- Ⓒ 3 packs
- Ⓓ 4 packs

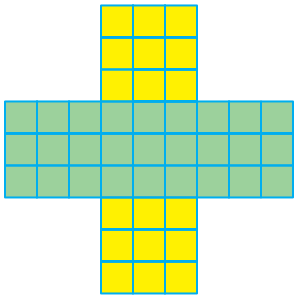
3. A bedroom floor is 9 feet long and 8 feet wide. What is the area of the bedroom floor?

- Ⓐ 1 square foot
- Ⓑ 72 feet
- Ⓒ 17 square feet
- Ⓓ 72 square feet

4. Your friend says $458 - 298 = 160$. How can you use inverse operations to check your friend's answer? Is your friend correct?

- Ⓐ Subtract: $458 - 300 = 158$. Your friend is correct.
- Ⓑ Add: $160 + 298 = 458$. Your friend is correct.
- Ⓒ Add: $298 + 458 = 756$. Your friend is incorrect.
- Ⓓ Subtract: $298 - 160 = 138$. Your friend is incorrect.

5. Your friend says she needs $(9 \times 3) + (3 \times 9) = 27 + 27 = 54$ tiles to make the design. Why is her thinking incorrect?



Ⓐ $27 + 27$ does not equal 54.

Ⓑ Your friend included the 9 middle tiles twice.

Ⓒ Your friend multiplied 3×9 incorrectly.

Ⓓ 9×3 does not equal 3×9.

---

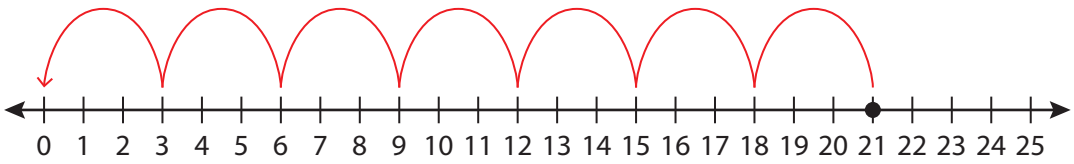
6. **Part A** What is the least number that can be made with the digits 7, 9, and 8 using each digit only once?

Think
Solve
Explain

Part B Your friend says the greatest number he can make with the digits 7, 9, and 8 using each digit only once is 879. Is he correct? If not, correct his answer. Explain.

---

7. Which equation is shown by the number line?



Ⓐ $21 \div 3 = 7$

Ⓑ $21 - 21 = 0$

Ⓒ $3 \times 7 = 21$

Ⓓ $21 - 7 = 14$

8. Find the sum.

$$\begin{array}{r} 548 \\ +\ 372 \\ \hline \end{array}$$

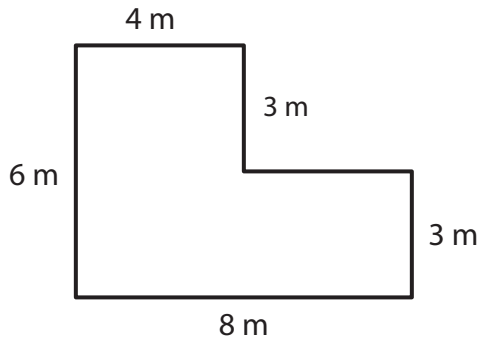
9. Which equations show the Associative Property of Addition?

- ☐ $45 + (34 + 21) = (45 + 34) + 21$
- ☐ $54 + 72 = 72 + 54$
- ☐ $56 + 0 = 56$
- ☐ $(62 + 84) + 19 = 62 + (84 + 19)$

10. A teacher takes 7 students on a field trip. Each student pays $5. How much money does the teacher collect in all?

- Ⓐ $2
- Ⓑ $12
- Ⓒ $35
- Ⓓ $30

11. What is the area of the shape?



- Ⓐ 24 square meters
- Ⓑ 48 square meters
- Ⓒ 14 square meters
- Ⓓ 36 square meters

12. There are 459 girls and 552 boys in a school. How many more boys are there than girls?

- Ⓐ 107
- Ⓑ 93
- Ⓒ 113
- Ⓓ 7

13. Look at the pattern. What rule was used to make the pattern?

1, 3, 9, 27

Ⓐ Add 2.

Ⓑ Subtract 2.

Ⓒ Multiply by 3.

Ⓓ Divide by 3.

14. A smoothie shop sells 368 smoothies in July and 205 smoothies in August. About how many more smoothies did the shop sell in July than in August?

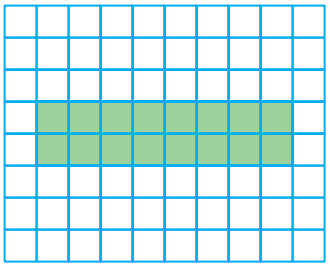
Ⓐ 100

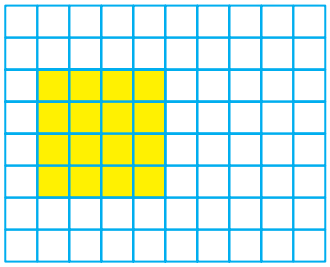
Ⓑ 200

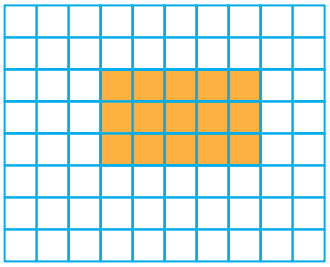
Ⓒ 103

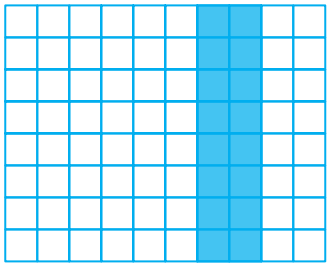
Ⓓ 600

15. Which shape does *not* have an area of 16 square units?

Ⓐ 

Ⓑ 

Ⓒ 

Ⓓ 

Complete the table.

16.

×	2	☐	9
4		12	
5	10		
☐			54

17.

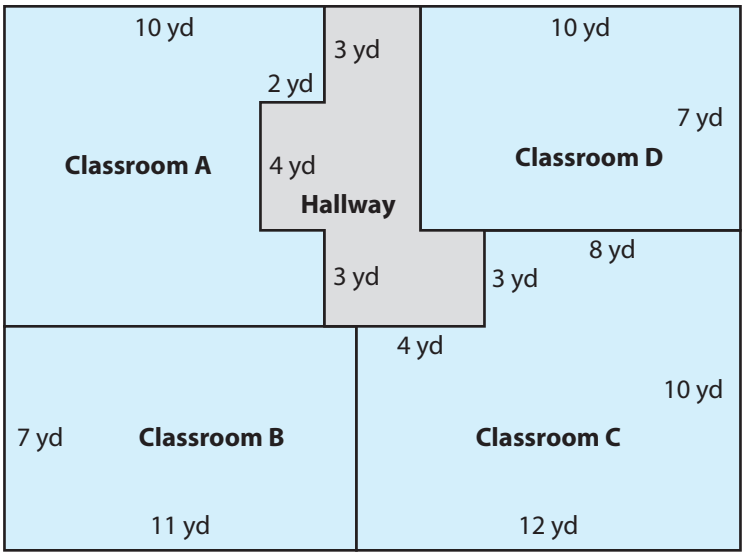
×	☐	3	4
☐			16
6	6		24
7			

Name _____

STEAM Performance Task 1–8

1. The carpeting in the third-grade classrooms of an elementary school is being replaced. One roll of carpet covers 100 square yards. The map shows the classrooms that will receive the new carpet.

Third-Grade Section



a. Explain two different ways to find the area of Classroom A.

b. Find the total area of all of the classrooms in square yards.

c. Estimate the number of rolls of carpet needed for the classrooms. Explain.

d. Find the area of the hallway in square yards. Is there enough carpet for the hallway?

2. Each school keeps a record of the total number of students in each class and grade.

a. Use the number of students in your class to estimate the total number of students in your grade. Explain.

b. Use the table to write the number of students in each grade of your school.

Grade	Number of Students

c. How does your estimate compare to the actual number of students in your grade? Explain.

d. What is the total number of students in your school?

e. Write and answer a question using the information from the table above.

f. What is one reason your principal may want to know the total number of students in your class, grade, or school?