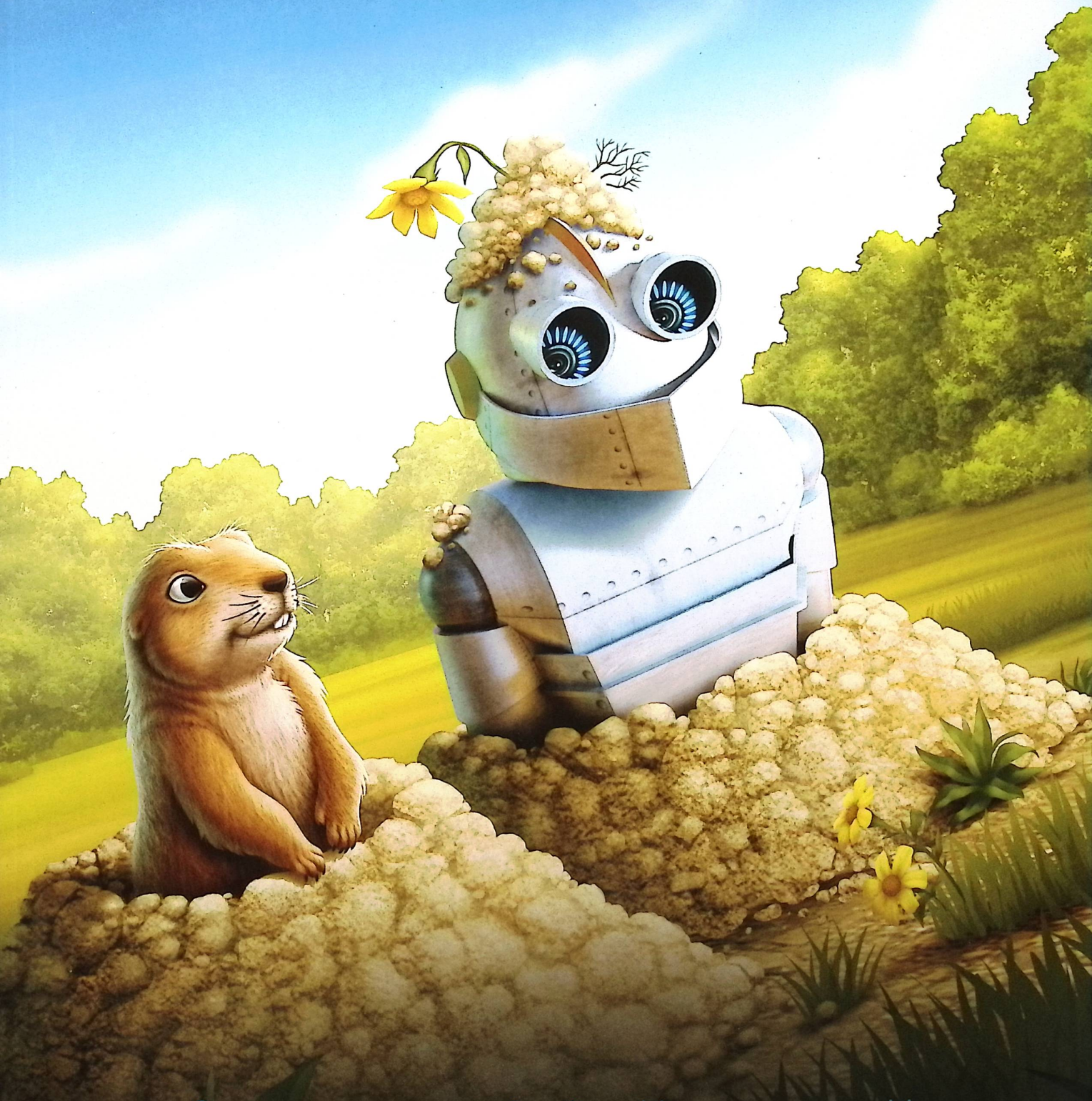


GRADE 3 VOLUME 2



enVision<sup>®</sup> Mathematics

SAVVAS



Hi, we're here to help you.  
Let's have a great year!

I'm Jackson.

I'm Zeke.

I'm Emily.

I'm Alex.

I'm Daniel.

I'm Jada.

I'm Carlos.

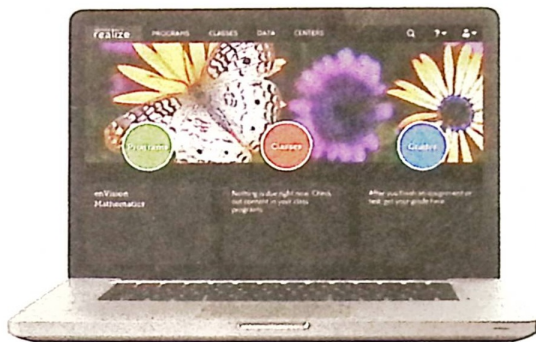
I'm Marta.



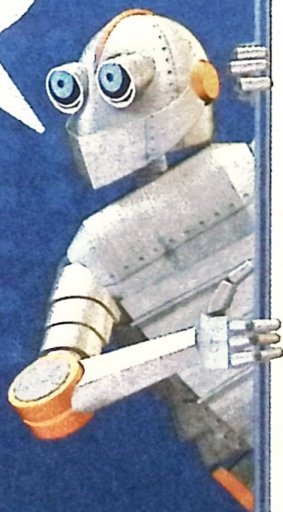


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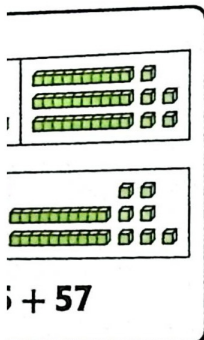
And remember  
your Interactive Student  
Edition is available at  
SavvasRealize.com!



## TOPICS

- 1 Understand Multiplication and Division of Whole Numbers
- 2 Multiplication Facts: Use Patterns
- 3 Apply Properties: Multiplication Facts for 3, 4, 6, 7, 8
- 4 Use Multiplication to Divide: Division Facts
- 5 Fluently Multiply and Divide within 100
- 6 Connect Area to Multiplication and Addition
- 7 Represent and Interpret Data
- 8 Use Strategies and Properties to Add and Subtract
- 9 Fluently Add and Subtract within 1,000
- 10 Multiply by Multiples of 10
- 11 Use Operations with Whole Numbers to Solve Problems
- 12 Understand Fractions as Numbers
- 13 Fraction Equivalence and Comparison
- 14 Solve Time, Capacity, and Mass Problems
- 15 Attributes of Two-Dimensional Shapes
- 16 Solve Perimeter Problems

Properties, such as  
the Associative Property,  
help you to add  
and subtract.



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When you add by place value, you add the hundreds, the tens, and the ones.



$$\begin{array}{r} 243 \\ + 179 \\ \hline 12 \\ 110 \\ + 300 \\ \hline 422 \end{array}$$

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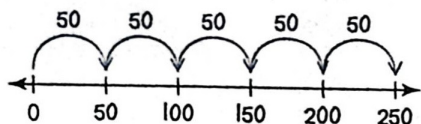
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You can use  
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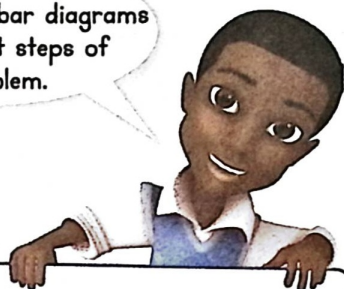
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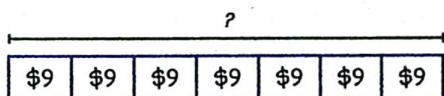
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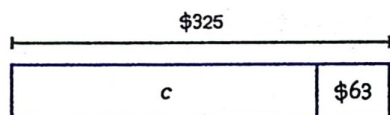
You can use unknowns and bar diagrams to represent steps of a problem.



$g$  = cost of GPS system for the week



$c$  = cost of the car without the GPS



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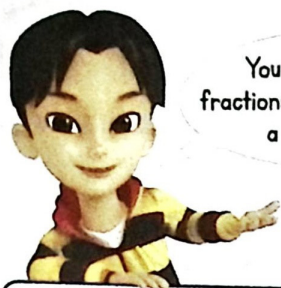
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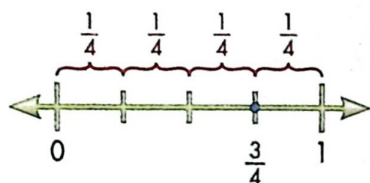
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You can represent fractions as equal parts of a number line.



$\frac{3}{4}$  is the same as  
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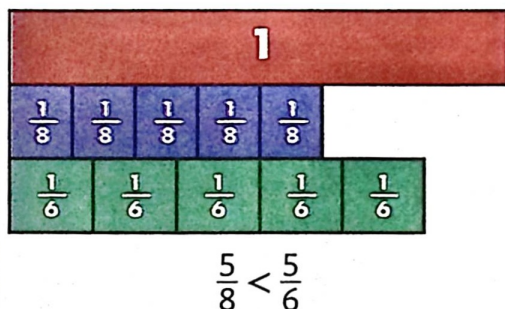
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You can use  
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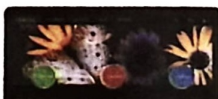
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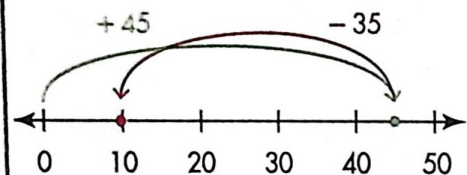
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You can use a number line to represent elapsed time.



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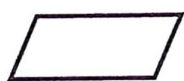
A quadrilateral is a polygon with four sides. These are different quadrilaterals.



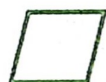
Trapezoid



Square



Parallelogram



Rhombus



Rectangle

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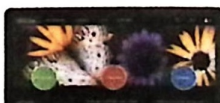
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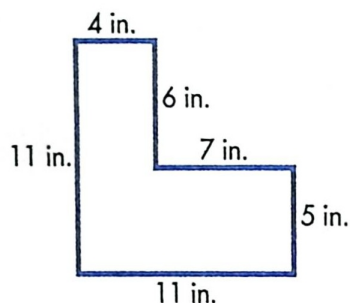
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You can find the perimeter of a shape by adding the lengths of its sides.



$$4 + 6 + 7 + 5 + 11 + 11 = 44$$

The perimeter of the shape is 44 inches.

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# Math Practices and Problem Solving Handbook



The **Math Practices and Problem Solving Handbook** is available at [SavvasRealize.com](http://SavvasRealize.com).

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## Make sense of problems and persevere in solving them.

Good math thinkers make sense of problems and think of ways to solve them.

If they get stuck, they don't give up.



Mia has \$36. Kate has \$17 less than Mia. Do Mia and Kate together have enough money to buy a bike for \$54?

Here I listed what I know and what I am trying to find.



**What I know:**

- Mia has \$36.
- Kate has \$17 less than \$36.
- The bike costs \$54.

**What I need to find:**

- Whether Kate and Mia have at least \$54 in all.

### Thinking Habits

Be a good thinker! These questions can help you.

- What do I need to find?
- What do I know?
- What's my plan for solving the problem?
- What else can I try if I get stuck?
- How can I check that my solution makes sense?



Math Practices and Problem Solving Handbook

3

Math Practices and Problem Solving Handbook

## Problem Solving Guide

### Make Sense of the Problem

#### Reason Abstractly and Quantitatively

- What do I need to find?
- What given information can I use?
- How are the quantities related?

#### Think About Similar Problems

- Have I solved problems like this before?

### Persevere in Solving the Problem

#### Model with Math

- How can I use the math I know?
- How can I represent the problem?
- Is there a pattern or structure I can use?

#### Use Appropriate Tools Strategically

- What math tools could I use?
- How can I use those tools strategically?

### Check the Answer

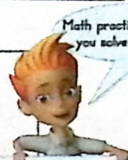
#### Make Sense of the Answer

- Is my answer reasonable?

#### Check for Precision

- Did I check my work?
- Is my answer clear?
- Did I construct a viable argument?
- Did I generalize correctly?

Math practices can help you solve problems.



### Some Ways to Represent Problems

- Draw a Picture
- Make a Bar Diagram
- Make a Table or Graph
- Write an Equation

### Some Math Tools

- Objects
- Grid Paper
- Rulers
- Technology
- Paper and Pencil

Math Practices and Problem Solving Handbook

1

Math Practices

Problem Solving Guide  
Problem Solving Recording Sheet  
Bar Diagrams



# Use Strategies and Properties to Add and Subtract

**Essential Question:** How can sums and differences be estimated and found mentally?

## Digital Resources



The fur of an arctic fox changes color during the year.

In the winter, an arctic fox has white fur. During the summer, it can have gray or brown fur.

Where something lives can affect its traits. Here's a project on plant and animal traits and the environment.



## enVision STEM Project: Traits and the Environment

**Do Research** Use the Internet or other sources to find out how the environment can influence plants or animals. Describe a trait in an animal or plant that can change due to the environment.

**Journal: Write a Report** Include what you found. Also in your report:

- Make a table that includes the plant or animal, the trait, and changes in the environment. Record any related data about the environment, such as temperature or rainfall.
- Include information about why the trait is useful.
- Write and solve addition problems using your data. Use estimation to check for reasonableness.



# Review What You Know

## **Vocabulary**

Choose the best term from the box.  
Write it on the blank.

- difference
- number line
- equation
- sum

1. The amount that is left after you subtract is the \_\_\_\_\_.
2. A line that shows numbers in order from left to right is a(n) \_\_\_\_\_.
3. The total when you add is the \_\_\_\_\_.
4. Both sides of a(n) \_\_\_\_\_ are equal.

## **Addition and Subtraction Strategies**

Find the sum or difference. Show your work.

5.  $32 + 58$
6.  $27 + 46$
7.  $73 - 52$
8.  $63 + 16$
9.  $88 - 28$
10.  $76 - 49$

## **Numerical Expressions**

11. Atif puts 45 rocks in a display box. He has 54 rocks in all.  
Which expression can be used to find how many rocks are not in the display box?

- (A)  $45 + 54$       (B)  $45 + 45$       (C)  $54 - 45$       (D)  $54 - 54$

## **Counting Money**

12. Tony has the coins shown at the right. Does he have enough money to buy a toy car that costs 86¢? Explain.





PROJECT  
8A

How much citrus is grown  
in Florida?

**Project:** Plan a Citrus Grove



PROJECT  
8B

Would you like to travel  
across the country?

**Project:** Create and  
Perform Skits





PROJECT  
8C

How can you add and subtract large numbers without a calculator?

**Project:** Make a Mental Math Game



PROJECT  
8D

How many people live in our country?

**Project:** Design a Class Census and Give an Estimation Test





Name \_\_\_\_\_



## Lesson 8-1

### Addition Properties

#### Solve & Share

Olivia arranges cups of buttons on three trays. She records the number of buttons on each cup. Which tray has the most buttons? Use place-value blocks or drawings to help solve the problem.

#### I can ...

use place value and properties to understand addition.

**I can also** look for patterns to solve problems.

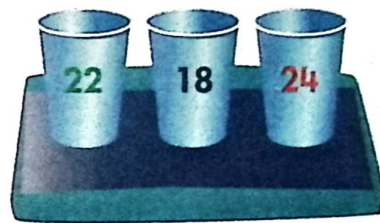
Are you making the same calculations more than once? How can you use structure to help solve the problem?



Tray A



Tray B



Tray C

**Look Back!** Olivia pours all the buttons on Tray A into a bowl. She then divides the buttons equally into 8 cups. How many buttons are in each cup? Explain.



Name \_\_\_\_\_

# ★ Guided Practice

## Do You Understand?

1. Ralph says he can rewrite  $(4 + 5) + 21$  as  $9 + 21$ . Do you agree? Why or why not?

2. What property is shown with this equation? How do you know?

$$65 + (18 + 38) = (18 + 38) + 65$$

## Do You Know How?

In **3** and **4**, identify each property.

3.  $4 + (15 + 26) = (4 + 15) + 26$

4.  $17 + 0 = 17$

In **5-7**, write each missing number.

5.  $\underline{\hspace{1cm}} + 90 = 90$

6.  $42 + 23 = 23 + \underline{\hspace{1cm}}$

7.  $(2 + \underline{\hspace{1cm}}) + 36 = 2 + (23 + 36)$

# ★ Independent Practice ★

In **8-11**, identify each property.

8.  $19 + 13 = 13 + 19$

9.  $18 + 0 = 18$

10.  $16 + (14 + 13) = (16 + 14) + 13$

11.  $(39 + 12) + 8 = (12 + 39) + 8$

In **12-19**, write each missing number.

12.  $25 + 62 = \underline{\hspace{1cm}} + 25$

13.  $(22 + 32) + 25 = \underline{\hspace{1cm}} + (22 + 32)$

14.  $23 + \underline{\hspace{1cm}} + 11 = 23 + 11$

15.  $10 + (45 + 13) = (\underline{\hspace{1cm}} + 45) + 13$

16.  $(\underline{\hspace{1cm}} + 0) + 14 = 7 + 14$

17.  $(12 + 2) + 20 = \underline{\hspace{1cm}} + 20$

18.  $34 + (2 + 28) = (\underline{\hspace{1cm}} + 28) + 34$

19.  $(50 + 30) + \underline{\hspace{1cm}} = 50 + (30 + 20)$



# Problem Solving

20. **Make Sense and Persevere** Gino packs his blue and green pencils into boxes. He puts 8 pencils in each box. How many boxes does Gino use?

DATA	Color	Number of Pencils
	Red	14
	Blue	23
	Green	17

21. Group the addends below in a different way to get the same sum. Write the new equation.

$$(42 + 14) + 6 = 62$$

22. **Vocabulary** How is the Commutative Property of Addition like the Commutative Property of Multiplication?

23. **enVision® STEM** A lionfish has 13 spines on its back, 2 more spines near its stomach, and 3 more near its tail. Using a property of addition, write two different equations to find how many spines a lionfish has. What property did you use?

24. **Higher Order Thinking** Barry says he can subtract numbers in any order and the difference will stay the same. Is Barry correct? Give an example to support your answer.

## Assessment Practice

25. Use place value to find the sum of  $33 + 42 + 17$ .

(A) 89  
(B) 90  
(C) 91  
(D) 92

26. Use properties of operations to find the sum of  $22 + 30 + 28$ .

(A) 80  
(B) 70  
(C) 60  
(D) 50

Name \_\_\_\_\_



Activity

## Solve & Share

Shade three sums that are next to each other on the addition table. Add the first and third sums you shaded. Find a pattern using that total and the second sum you shaded. How are the total and the second sum related? Is this true for other sets of three sums next to each other?

+	10	11	12	13	14	15	16	17	18	19
20	30	31	32	33	34	35	36	37	38	39
21	31	32	33	34	35	36	37	38	39	40
22	32	33	34	35	36	37	38	39	40	41
23	33	34	35	36	37	38	39	40	41	42
24	34	35	36	37	38	39	40	41	42	43
25	35	36	37	38	39	40	41	42	43	44
26	36	37	38	39	40	41	42	43	44	45
27	37	38	39	40	41	42	43	44	45	46
28	38	39	40	41	42	43	44	45	46	47
29	39	40	41	42	43	44	45	46	47	48

↑  
These are  
addends.

↓  
These are  
sums.

You can look for **relationships** in the addition table. The numbers in the shaded column and shaded row are addends. The other numbers are the sums.



## Lesson 8-2

### Algebra: Addition Patterns

**I can ...**

find and explain addition patterns.

**I can also** look for patterns to solve problems.

**Look Back!** Explain how you can test to see if the relationship among the three sums that are next to each other is a pattern.





Helen found the sum of the purple numbers in the red square. Then she found the sum of the green numbers. The sums form a pattern. Find the sums and describe the pattern.



You can use a variety of strategies to find the sums!

+	30	31	32	33	34	35	36	37	38	39
10	40	41	42	43	44	45	46	47	48	49
11	41	42	43	44	45	46	47	48	49	50
12	42	43	44	45	46	47	48	49	50	51
13	43	44	45	46	47	48	49	50	51	52
14	44	45	46	47	48	49	50	51	52	53
15	45	46	47	48	49	50	51	52	53	54
16	46	47	48	49	50	51	52	53	54	55
17	47	48	49	50	51	52	53	54	55	56
18	48	49	50	51	52	53	54	55	56	57
19	49	50	51	52	53	54	55	56	57	58

**B** Use the Associative Property.

$$44 + 48 = 44 + (2 + 46)$$

$$= (44 + 2) + 46$$

$$= 46 + 46$$

$$44 + 48 = 46 + 46$$

The sum of the purple numbers is equal to the sum of the green numbers. That's a pattern!

**C** Use mental math.

$$44 + 48 = (44 + 2) + (48 - 2)$$

$$= 46 + 46$$

$$44 + 48 = 46 + 46$$



**D** Use the Commutative and Associative Properties.

$$44 + 48 = (10 + 34) + (12 + 36)$$

$$46 + 46 = (12 + 34) + (10 + 36)$$

Use the properties to rearrange the addends.

$$(10 + 34) + (12 + 36) =$$

$$(10 + 34) + (12 + 36)$$

The sum of the purple numbers is 92.

The sum of the green numbers is 92.

The sums are double the middle number in the red square. That is another pattern.

**Convince Me! Generalize** The red square above is 3 squares tall by 3 squares wide. Sebastian says there are other size squares in the addition table that have patterns. Describe a different-size square and its patterns.



## ☆ Guided Practice

### Do You Understand?

1. Are the sums of any two sets of diagonal corner numbers in a 3-by-3 square in a standard addition table always equal? Explain.

### Do You Know How?

2. Look at the addition table in Box A on the previous page. Why do the numbers going down to the right on the diagonal increase by 2? Explain.

## ☆ Independent Practice ☆

In **3** and **4**, use the table at the right.

3. Look at the sums that are shaded the same color. Describe a pattern shown by these pairs of sums. Explain why this pattern is true.
4. Find other pairs of sums with a similar pattern. Shade them on the table. Explain why you chose those sums.

+	20	21	22	23	24	25	26	27
20	40	41	42	43	44	45	46	47
21	41	42	43	44	45	46	47	48
22	42	43	44	45	46	47	48	49
23	43	44	45	46	47	48	49	50
24	44	45	46	47	48	49	50	51
25	45	46	47	48	49	50	51	52
26	46	47	48	49	50	51	52	53
27	47	48	49	50	51	52	53	54

In **5** and **6**, use the table at the right.

5. Shade the table to show a pattern you see. Describe your pattern.
6. Explain why your pattern is true.

+	20	21	22	23	24	25	26	27
44	64	65	66	67	68	69	70	71
45	65	66	67	68	69	70	71	72
46	66	67	68	69	70	71	72	73
47	67	68	69	70	71	72	73	74
48	68	69	70	71	72	73	74	75
49	69	70	71	72	73	74	75	76



Name \_\_\_\_\_



Activity

## Solve & Share

A school store sold 436 pencils last week and 7 packages that each had 4 pencils today. Use mental math to find how many pencils were sold in all. Explain how you found your answer.

You can **use structure** by examining the quantities in the problem.



## Lesson 8-3

### Mental Math: Addition

**I can ...**

use mental math to add.

**I can also** look for patterns to solve problems.

**Look Back!** What is another way you can find the sum of 436 pencils plus 7 packages of 4 pencils each using mental math?

