

Simplify the expression.

1. $5 + (-15)$

2. $6 - 7$

3. $10 \cdot (-1)$

4. $\frac{-30}{2}$

5. $-1 \cdot 0$

6. $4 - (-5)$

Bell Work – Before Order of Operations

1. $\frac{4(8-2)}{3+9}$

2. $4 + 3(15 - 2^3)$

3. $4 + 8 \div 2 + 6 \cdot 3$

4. $19 + 3[(8 + 3) - 9 \div 3]$

5. Evaluate... $18 - 3x$; when $x = 4$

Chapter 1

Chapter 1 Maintaining Mathematical Proficiency

1. -4
2. -12
3. 7
4. -11
5. *Sample answer:* -2 and -4 , -8 and 2
6. 60°F
7. -26
8. 40
9. -7
10. 10
11. *Sample answer:* -5 and 4 , 10 and -2
12. -9

Tell which property the statement illustrates.

1. $2 + 4 = 4 + 2$

2. $(3 \cdot 7)4 = 3(7 \cdot 4)$

3. $8 + 0 = 8$

4. $7 \cdot \left(\frac{1}{7}\right) = 1$

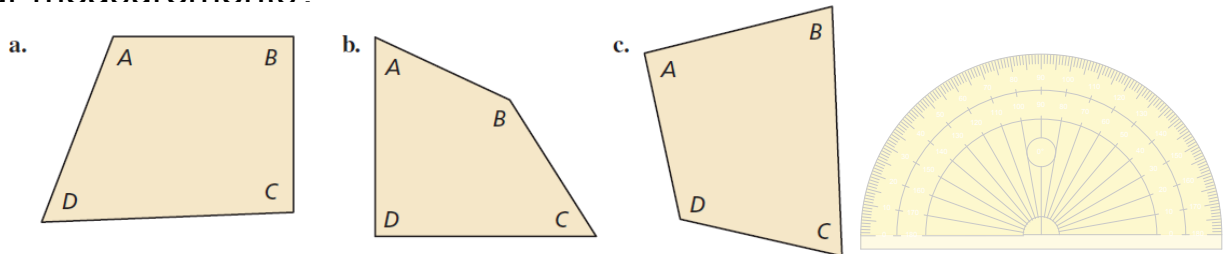
5. $4 \cdot 0 = 0$

6. $12(8 + 3) = 12 \cdot 8 + 12 \cdot 3$

Essential Question

How can you use simple equations to solve real-life problems?

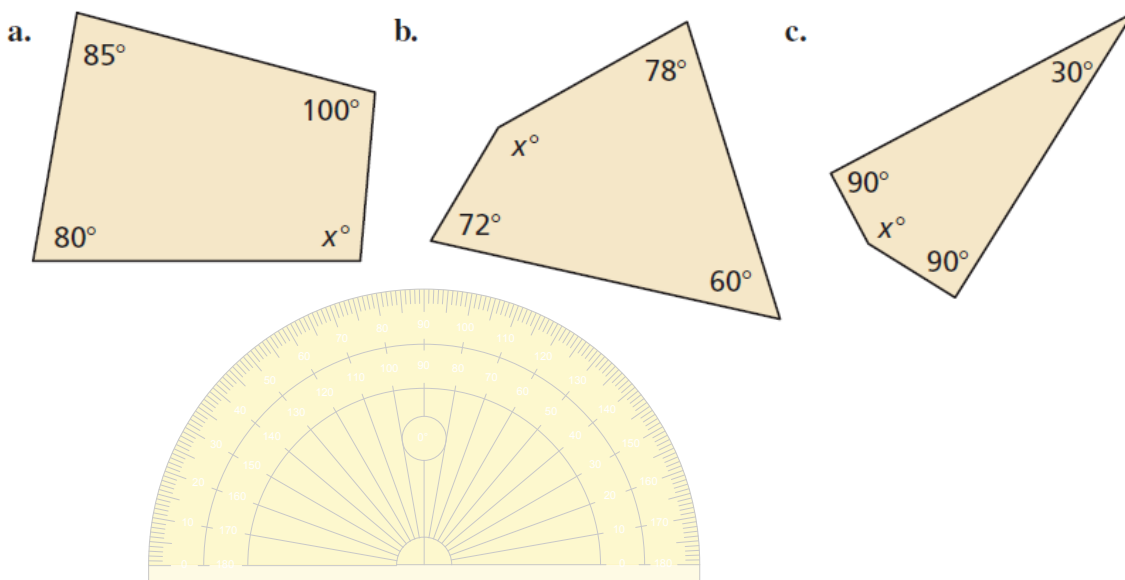
Work with a partner. Use a protractor to measure the angles of each quadrilateral. Copy and complete the table to organize your results. (The notation $m\angle A$ denotes the measure of angle A.) How precise are your measurements?



Quadrilateral	$m\angle A$ (degrees)	$m\angle B$ (degrees)	$m\angle C$ (degrees)	$m\angle D$ (degrees)	$m\angle A + m\angle B + m\angle C + m\angle D$
a.					
b.					
c.					

Work with a partner. Use the completed table in Exploration 1 to write a conjecture about the sum of the angle measures of a quadrilateral. Draw three quadrilaterals that are different from those in Exploration 1 and use them to justify your conjecture.

Work with a partner. Use the conjecture you wrote in Exploration 2 to write an equation for each quadrilateral. Then solve the equation to find the value of x . Use a protractor to check the reasonableness of your answer.



 **Core Concept****Addition Property of Equality**

Words Adding the same number to each side of an equation produces an equivalent equation.

Algebra If $a = b$, then $a + c = b + c$.

Subtraction Property of Equality

Words Subtracting the same number from each side of an equation produces an equivalent equation.

Algebra If $a = b$, then $a - c = b - c$.

Solve each equation. Justify each step. Check your answer.

a. $x - 3 = -5$

b. $0.9 = y + 2.8$

Solve the equation. Justify each step. Check your solution.

1. $n + 3 = -7$

2. $g - \frac{1}{3} = -\frac{2}{3}$

3. $-6.5 = p + 3.9$

 **Core Concept****Multiplication Property of Equality**

Words Multiplying each side of an equation by the same nonzero number produces an equivalent equation.

Algebra If $a = b$, then $a \cdot c = b \cdot c$, $c \neq 0$.

Division Property of Equality

Words Dividing each side of an equation by the same nonzero number produces an equivalent equation.

Algebra If $a = b$, then $a \div c = b \div c$, $c \neq 0$.

Solve each equation. Justify each step. Check your answer.

a. $-\frac{n}{5} = -3$

b. $\pi x = -2\pi$

c. $1.3z = 5.2$

Solve the equation. Justify each step. Check your solution.

4. $\frac{y}{3} = -6$

5. $9\pi = \pi x$

6. $0.05w = 1.4$

 **Core Concept****Four-Step Approach to Problem Solving**

1. **Understand the Problem** What is the unknown? What information is being given? What is being asked?
2. **Make a Plan** This plan might involve one or more of the problem-solving strategies shown on the next page.
3. **Solve the Problem** Carry out your plan. Check that each step is correct.
4. **Look Back** Examine your solution. Check that your solution makes sense in the original statement of the problem.

In the 2012 Olympics, Usain Bolt won the 200-meter dash with a time of 19.32 seconds. Write and solve an equation to find his average speed to the nearest hundredth of a meter per second.

7. Suppose Usain Bolt ran 400 meters at the same average speed that he ran the 200 meters. How long would it take him to run 400 meters? Round your answer to the nearest hundredth of a second.

 **Core Concept****Common Problem-Solving Strategies**

Use a verbal model.

Draw a diagram.

Write an equation.

Look for a pattern.

Work backward.

Guess, check, and revise.

Sketch a graph or number line.

Make a table.

Make a list.

Break the problem into parts.

On January 22, 1943, the temperature in Spearfish, South Dakota, fell from 54°F at 9:00 a.m. to -4°F at 9:27 a.m. How many degrees did the temperature fall?

8. You thought the balance in your checking account was \$68. When your bank statement arrives, you realize that you forgot to record a check. The bank statement lists your balance as \$26. Write and solve an equation to find the amount of the check that you forgot to record.

- Describe in words how to solve a one-step equation.

- Solve for x : $-13.8 = x - 4.3$