

**Directions: Read pages 234 - 240. Use the text to help you answer the questions on this worksheet.**

**Classify the following terms and phrases into the two categories below. A term might be used in more than one category. Re-type the terms in the chart below.**

<b>Primary Source</b>	<b>Bias</b>	<b>Opinion</b>
<b>Secondary Source</b>	<b>Personal Experiences</b>	<b>Fact</b>
<b>"Loaded Language"</b>	<b>Verify Information</b>	<b>Cultural Values</b>
<b>Point of View</b>	<b>Credible</b>	<b>Half Truths</b>
<b>Faulty Reasoning</b>	<b>Presenting Opposing Viewpoints</b>	<b>Seeing all Angles</b>

<b>Examining the Accuracy of a Source</b>	<b>Examining Multiple Perspectives</b>
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	
10.	
11.	
12.	

**Page 239 STUDY CARDS****\*\*\*\*\*Accuracy of a Source\*\*\*\*\***

1. How does a primary source differ from a secondary source?
2. What makes a source accurate?
3. How do you examine a source for its accuracy?
4. How can you detect bias in a source?

**\*\*\*\*\*Multiple Perspectives\*\*\*\*\***

1. What is meant by perspective?
2. Why is it important to view an event from a variety of perspectives?

# Equations

## Vocabulary Start-Up



An **equation** is a mathematical sentence showing two expressions are equal. An equation contains an **equals sign**, =.

Equation
Definition
Example

Expression
Definition
Example

How are an equation and an expression similar?

How are an equation and an expression different?



### Essential Question

HOW do you determine if two numbers or expressions are equal?



### Vocabulary

- equation
- equals sign
- solve
- solution



### Common Core State Standards

Content Standards  
6.EE.5

MP Mathematical Practices  
1, 2, 3, 4, 7



## Real-World Link

**Shopping** Anna bought a package of 6 pair of socks. She writes the equation below to find how much she paid per pair. Circle the solution of the equation.

$$6x = \$9$$

- \$0.50    \$1.50    \$2.00

Which **MP Mathematical Practices** did you use?

Shade the circle(s) that applies.

- |                           |                          |
|---------------------------|--------------------------|
| ① Persevere with Problems | ⑤ Use Math Tools         |
| ② Reason Abstractly       | ⑥ Attend to Precision    |
| ③ Construct an Argument   | ⑦ Make Use of Structure  |
| ④ Model with Mathematics  | ⑧ Use Repeated Reasoning |



## Solve Addition and Subtraction Equations Mentally

When you replace a variable with a value that results in a true sentence, you **solve** the equation. That value for the variable is the **solution** of the equation.

$$2 + x = 9$$

$$2 + 7 = 9$$

$$9 = 9$$

The value for the variable that results in a true sentence is 7. So, 7 is the solution.

This sentence is true.

### Examples



1. Is 3, 4, or 5 the solution of the equation  $a + 7 = 11$ ?

Value of $a$	$a + 7 \stackrel{?}{=} 11$	Are Both Sides Equal?
3	$3 + 7 \stackrel{?}{=} 11$ $10 \neq 11$	no
4	$4 + 7 \stackrel{?}{=} 11$ $11 = 11$	yes ✓
5	$5 + 7 \stackrel{?}{=} 11$ $12 \neq 11$	no

The solution is 4.

2. Solve  $g - 7 = 3$  mentally.

$$g - 7 = 3 \quad \text{Think What number minus 7 equals 3?}$$

$$10 - 7 = 3 \quad \text{You know that } 10 - 7 = 3.$$

$$3 = 3$$

The solution is 10.

3. The total cost of a pair of skates and kneepads is \$63. The skates cost \$45. Use the *guess, check, and revise* strategy to solve the equation  $45 + k = 63$  to find  $k$ , the cost of the kneepads.

Use the *guess, check, and revise* strategy.

Try 14.

$$45 + k = 63$$

$$45 + 14 \stackrel{?}{=} 63$$

$$59 \neq 63$$

Try 16.

$$45 + k = 63$$

$$45 + 16 \stackrel{?}{=} 63$$

$$61 \neq 63$$

Try 18.

$$45 + k = 63$$

$$45 + 18 \stackrel{?}{=} 63$$

$$63 = 63 \quad \checkmark$$

So, the kneepads cost \$18.

### STOP and Reflect

How can you check if your solution to an equation is correct?

**Got it?** Do these problems to find out.

- a. Is 4, 5, or 6 the solution of the equation  $c + 8 = 13$ ?
- b. Solve  $9 - x = 2$  mentally.
- c. The difference between an ostrich's speed and a chicken's speed is 31 miles per hour. An ostrich can run at a speed of 40 miles per hour. Use mental math or the *guess, check, and revise* strategy to solve the equation  $40 - c = 31$  to find  $c$ , the speed a chicken can run.

a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_

## Solve Multiplication and Division Equations Mentally

Multiplication and division equations are solved in a similar way to addition and subtraction equations.

### Examples



**4.** Is 3, 4, or 5 the solution of the equation  $18 = 6z$ ?

Value of $z$	$18 = 6z$	Are Both Sides Equal?
3	$18 \stackrel{?}{=} 6 \cdot 3$ $18 = 18$	yes ✓
4	$18 \stackrel{?}{=} 6 \cdot 4$ $18 \neq 24$	no
5	$18 \stackrel{?}{=} 6 \cdot 5$ $18 \neq 30$	no

The solution is 3.

**5.** Solve  $16 \div s = 8$  mentally.

$16 \div s = 8$       Think 16 divided by what number equals 8?  
 $16 \div 2 = 8$       You know that  $16 \div 2 = 8$ .  
 $8 = 8$

The solution is 2.

**Got it?** Do these problems to find out.

- d. Is 2, 3, or 4 the solution of the equation  $4n = 16$ ?
- e. Solve  $24 \div w = 8$  mentally.

Show your work. →

d. \_\_\_\_\_  
 e. \_\_\_\_\_



### Example



**6.** Mason bought 72 sticks of gum. There are 8 sticks of gum in each package. Use the *guess, check, and revise* strategy to solve the equation  $8 \cdot p = 72$  to find  $p$ , the number of packages Mason bought.

Use the *guess, check, and revise* strategy.

Try 7.	Try 8.	Try 9.
$8 \cdot p = 72$	$8 \cdot p = 72$	$8 \cdot p = 72$
$8 \cdot 7 \stackrel{?}{=} 72$	$8 \cdot 8 \stackrel{?}{=} 72$	$8 \cdot 9 \stackrel{?}{=} 72$
$56 \neq 72$	$64 \neq 72$	$72 = 72 \checkmark$

So, Mason bought 9 packages of gum.



## Guided Practice

Identify the solution of each equation from the list given. (Examples 1 and 4)

1.  $9 + w = 17$ ; 7, 8, 9 \_\_\_\_\_
2.  $8 \div c = 8$ ; 0, 1, 2 \_\_\_\_\_



Solve each equation mentally. (Examples 2 and 5)


3.  $x - 11 = 23$
4.  $4x = 32$

5. Mississippi and Georgia have a total of 21 electoral votes. Mississippi has 6 electoral votes. Use mental math or the *guess, check, and revise* strategy to solve the equation  $6 + g = 21$  to find  $g$ , the number of electoral votes Georgia has. (Example 3)

\_\_\_\_\_

6. Riley and her sister collect stickers. Riley has 220 stickers in her sticker collection. Her sister has 55 stickers in her collection. Riley has how many times as many stickers as her sister? Use mental math or the *guess, check, and revise* strategy to solve the equation  $55x = 220$ . (Example 6)


\_\_\_\_\_

7.  **Building on the Essential Question** How do you solve an equation? \_\_\_\_\_


\_\_\_\_\_

### Rate Yourself!

I understand how to solve equations.

 Great! You're ready to move on!

I still have some questions about solve equations.

 No Problem! Go online to access a Personal Tutor.



**FOLDABLES** Time to update your Foldable!

**Independent Practice**

Go online for Step-by-Step Solutions



Identify the solution of each equation from the list given. (Examples 1 and 4)

1  $29 + d = 54$ ; 24, 25, 26 \_\_\_\_\_

Show  
your  
work.

2.  $35 = 45 - n$ ; 10, 11, 12 \_\_\_\_\_

3.  $6w = 30$ ; 5, 6, 7 \_\_\_\_\_

4.  $x \div 7 = 3$ ; 20, 21, 22 \_\_\_\_\_

Solve each equation mentally. (Examples 2 and 5)

5.  $m + 4 = 17$

6.  $12 = 24 - y$

7.  $15 - b = 12$

8.  $10t = 90$

9.  $22 \div y = 2$

10.  $54 = 6b$

**MP Identify Structure** For Exercises 11–13, solve using mental math or the *guess, check, and revise strategy*. (Examples 3 and 6)

11. One season, the Cougars won 20 games. They played a total of 25 games. Use the equation  $20 + g = 25$  to find  $g$ , the number of games the team lost.
- \_\_\_\_\_

12. Five friends earn a total of \$50 doing yard work in their neighborhood. Each friend earns the same amount. Use the equation  $5f = 50$  to find  $f$ , the amount that each friend earns.
- \_\_\_\_\_

- 13 Last year, 700 students attended Walnut Springs Middle School. This year, there are 665 students. Use the equation  $700 - d = 665$  to find  $d$ , the decrease in the number of students from last year to this year.
- \_\_\_\_\_



## H.O.T. Problems Higher Order Thinking

14. **MP Reason Inductively** What 3 consecutive even numbers added together equal 42? Use the equation  $n + (n + 2) + (n + 4) = 42$  to help you solve. \_\_\_\_\_  
\_\_\_\_\_
15. **MP Reason Abstractly** Give an example of an equation that has a solution of 5. \_\_\_\_\_  
\_\_\_\_\_
16. **MP Reason Inductively** Tell whether the statement below is *always*, *sometimes*, or *never* true.  
*Equations like  $a + 4 = 8$  and  $4 - m = 2$  have exactly one solution.*  
\_\_\_\_\_  
\_\_\_\_\_
- MP Persevere with Problems** Tell whether each statement is *true* or *false*. Then explain your reasoning.
17. In  $m + 8$ , the variable  $m$  can have any value.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
18. In  $m + 8 = 12$ , the variable  $m$  can have any value and be a solution.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
19. **MP Reason Abstractly** Distinguish between expressions and equations algebraically, by providing an example of an algebraic expression and an example of an algebraic equation.  
\_\_\_\_\_  
\_\_\_\_\_
20. **MP Model with Mathematics** Write a real-world problem in which you would solve the equation  $a + 12 = 30$ .  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_