



Name _____ Date _____

Solving Equations (pages 34–37)

In mathematics, an **equation** is a sentence that contains an equals sign, $=$. Equations can be either true or false. An equation with a variable is neither true nor false until the variable is replaced with a number.

$y + 2 = 9$ Replace y with 5. Is $5 + 2 = 9$ a true sentence? $7 = 9$ No, the sentence is false.	$y + 2 = 9$ Replace y with 7. Is $7 + 2 = 9$ a true sentence? $9 = 9$ Yes, the sentence is true.
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EXAMPLES

A Is $12 - z = 10$ true if $z = 3$?

$12 - 3 \stackrel{?}{=} 10$ Replace z with 3.
 $9 = 10$ Subtract 3 from 12.
 No, the sentence is false.

B Is $3a + 1 = 13$ true if $a = 4$?

$3 \cdot 4 + 1 \stackrel{?}{=} 13$ Replace a with 4.
 $12 + 1 \stackrel{?}{=} 13$ Multiply 3 by 4.
 $13 = 13$ Add 12 and 1.
 Yes, the sentence is true.

Try These Together

Tell whether the equation is true or false by replacing the variable with the given value.

1. $s + 15 = 19$; $s = 6$

HINT: Replace the variable, then evaluate.

2. $8 + n - 7 = 2$; $n = 1$

HINT: Replace the variable, then evaluate.

PRACTICE

Tell whether the equation is true or false by replacing the variable with the given value.

3. $75 + s = 120$; $s = 45$

4. $95 \div x = 5$; $x = 17$

5. $y - 22 = 56$; $y = 78$

6. $6m = 48$; $m = 7$

Identify the solution to each equation from the list given.

7. $j + 4 = 21$; 17, 18, 19

8. $b - 77 = 32$; 107, 109, 111

9. $45 = 15r$; 3, 4, 5

10. $27 + w = 45$; 17, 18, 19

Solve each equation mentally.

11. $6 + p = 14$

12. $75 = 3t$

13. $18v = 36$



14. Standardized Test Practice Solve $39 \div s = 3$.

A 3

B 6

C 11

D 13

Answers: 1. false 2. true 3. true 4. false 5. true 6. false 7. 17 8. 109 9. 3 10. 18 11. 8 12. 25 13. 2 14. D