

Name: _____

Sec. 3.1: Solve One-Step Equations

Equivalent equations: equations that have

Example: $x + 5 = 10$ and $x = 5$

Inverse operations: two operations that

- Addition &
- Multiplication &
- Squaring &
- Etc.

Addition Property of Equality

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

If $x - a = b$, then $x - a + a = b + a$, or $x =$ $x - 3 = 4 \rightarrow x - 3 + 3 = 4 + 3 \rightarrow x =$

Subtraction Property of Equality

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

If $x + a = b$, then $x + a - a = b - a$, or $x =$ $x + 3 = 15 \rightarrow x + 3 - 3 = 15 - 3 \rightarrow x =$

Multiplication Property of Equality

Multiplying each side of an equation by the same _____ produces an equivalent equation.

If $\frac{x}{a} = b$ and $a \neq 0$, then $a \cdot \frac{x}{a} = a \cdot b$, or $x =$ $\frac{x}{3} = 12 \rightarrow 3 \cdot \frac{x}{3} = 3 \cdot 12 \rightarrow x =$

Division Property of Equality

Dividing each side of an equation by the same _____ produces an equivalent equation.

If $ax = b$ and $a \neq 0$, then $\frac{ax}{a} = \frac{b}{a}$ or $x =$ $2x = 10 \rightarrow \frac{2x}{2} = \frac{10}{2} \rightarrow x =$

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Examples

Solve the equation. Check your solution.

1. $x + 6 = 8$

2. $7 = y + 10$

3. $q - 4 = -9$

4. $3x = -15$

5. $\frac{x}{4} = 10$

6. $m + \frac{3}{2} = 8$

7. $\frac{2}{3}x = 18$

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Sec. 3.1 Practice Problems

Solve the equation. Check your solution.

1) $x + 8 = 12$

2) $m + 4 = 11$

3) $t + 2 = 17$

4) $x + 9 = 5$

5) $y + 2.5 = 6.8$

6) $z + 5\frac{1}{2} = 4\frac{3}{8}$

7) $3a = 9$

8) $-2a = 42$

9) $5a = -20$

10) $-6x = 42$

11) $3m = 22.5$

12) $4q = 18$

13) $\frac{x}{4} = 10$

14) $\frac{x}{3} = -7$

15) $\frac{x}{-2} = -6$

16) $\frac{3}{4}x = 21$

17) $-\frac{2}{3}y = 24$

18) $\frac{1}{5}h = 2\frac{3}{4}$

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Sec. 3.1 Practice Problems

Solve the equation. Check your solution.		
1) $x + 8 = 12$ $x = 4$	2) $m + 4 = 11$ $m = 7$	3) $t + 2 = 17$ $t = 15$
4) $x + 9 = 5$ $x = 4$	5) $y + 2.5 = 6.8$ $y = 4.3$	6) $z + 5\frac{1}{2} = 4\frac{3}{8}$ $z = -1\frac{1}{8}$
7) $3a = 9$ $a = 3$	8) $-2a = 42$ $a = -21$	9) $5a = -20$ $a = -4$
10) $-6x = 42$ $x = -7$	11) $3m = 22.5$ $m = 7.5$	12) $4q = 18$ $q = \frac{9}{2}$
13) $\frac{x}{4} = 10$ $x = 40$	14) $\frac{x}{3} = -7$ $x = -21$	15) $\frac{x}{-2} = -6$ $x = 12$
16) $\frac{3}{4}x = 21$ $x = 28$	17) $-\frac{2}{3}y = 24$ $y = -36$	18) $\frac{1}{5}h = 2\frac{3}{4}$ $h = \frac{55}{4}$