

Unit 1.4

Literal Equations and Formulas

Solve each equation for the indicated variable.

1. $g = \frac{x}{c}$, solve for x

$g = \frac{x}{c}$ Write the original problem

$c \cdot g = \frac{x}{c} \cdot c$ Multiply both sides by c

$cg = x$ Simplify

3. $z = am$, solve for a

$z = am$ Write the original problem

$\frac{z}{m} = \frac{am}{m}$ Divide by m to both side

$\frac{z}{m} = a$ Simplify

5. $u = a - k$, solve for a

$u = a - k$ Write the original problem

$u + (k) = a - k + (k)$ Add k to both side

$u + k = a$ Simplify and Combine like terms

7. $g = c + a$, solve for a

$g = c + a$ Write the original problem

$g - (c) = c - (c) + a$ Subtract c from both side

$g - c = a$ Simplify and Combine like terms

9. $z = b + ma$, solve for a

$$z = b + ma \quad \text{Write the original problem}$$

$$z - (b) = b - (b) + ma \quad \text{Subtract } b \text{ from both side}$$

$$z - b = ma \quad \text{Simplify and Combine like terms}$$

$$\frac{z-b}{m} = \frac{ma}{m} \quad \text{Divide by } m \text{ to both side}$$

$$\frac{z-b}{m} = a \quad \text{Simplify}$$

11. $m - x = p - n$, solve for x

$$m - x = p - n \quad \text{Write the original problem}$$

$$m - (m) - x = p - n - (m) \quad \text{Subtract } m \text{ from both side}$$

$$-x = p - n - m \quad \text{Simplify and Combine like terms}$$

$$-1 \cdot (-x) = -1 \cdot (p - n - m) \quad \text{Multiply both sides by } -1$$

$$x = -1 \cdot (p) - 1 \cdot (-n) - 1 \cdot (-m) \quad \text{Distribute}$$

$$x = -p + n + m \quad \text{Simplify}$$

13. $kx = w - v$, solve for x

$$kx = w - v \quad \text{Write the original problem}$$

$$\frac{kx}{k} = \frac{w-v}{k} \quad \text{Divide by } k \text{ to both side}$$

$$x = \frac{w-v}{k} \quad \text{Simplify}$$

15. $a + m = b + n + p$, solve for a

$$a + m = b + n + p \quad \text{Write the original problem}$$

$$a + m - (m) = b + n + p - (m) \quad \text{Subtract } m \text{ from both side}$$

$$a = b + n + p - m \quad \text{Simplify and Combine like terms}$$

17. $z = \frac{p+n}{x+m}$, solve for x

$$z = \frac{p+n}{x+m}$$

Write the original problem

$$(x + m) \cdot z = \frac{p+n}{x+m} \cdot (x + m)$$

Multiply both sides by $(x + m)$

$$(x + m) \cdot z = p + n$$

Simplify

$$\frac{(x+m) \cdot z}{z} = \frac{p+n}{z}$$

Divide both sides by z

$$x + m = \frac{p+n}{z}$$

Simplify

$$x + m - (m) = \frac{p+n}{z} - (m)$$

Subtract m from both side

$$x = \frac{p+n}{z} - m$$

Simplify