

Literal Equations More Practice

Name Key
Period _____ Date _____

Day 08 CW- Solve each equation. The equations on the left are more familiar and may seem easier, but the equations on the right—the *literal equations*—can be solved using very similar steps. You don't have to do a two-column proof, but you must **SHOW ALL STEPS CLEARLY**.

Regular Equation

1. Solve for x : $3x - 4 = 8$

$$\begin{aligned} &+4 \quad +4 \\ 3x - 4 &= 8 \\ \frac{3x}{3} - \frac{4}{3} &= \frac{8}{3} \\ \frac{3x}{3} &= \frac{8}{3} + \frac{4}{3} \\ \frac{3x}{3} &= \frac{12}{3} \\ \boxed{x = 4} \end{aligned}$$

2. Solve for x : $4(x + 2) = 24$

$$\begin{aligned} \cancel{4} (x + 2) &= \frac{24}{4} \\ x + 2 &= 6 \\ \cancel{-2} \quad \cancel{-2} \\ \boxed{x = 4} \end{aligned}$$

3. Solve for x : $\frac{x}{2} + 3 = 9$

$$\begin{aligned} \frac{x}{2} + 3 &= 9 \\ \cancel{-3} \quad \cancel{-3} \\ \frac{x}{2} &= 6 \\ (2) \frac{x}{2} &= (2) 6 \\ \boxed{x = 12} \end{aligned}$$

4. Solve for x : $\frac{2x}{4} \cdot 4 = \frac{24}{4}$

$$\begin{aligned} \cancel{2} x &= \frac{6}{2} \\ \frac{2x}{2} &= \frac{6}{2} \\ \boxed{x = 3} \end{aligned}$$

5. Solve for x : $(2) \frac{4-x}{2} = 6 (2)$

$$\begin{aligned} \cancel{4} - x &= 12 \\ \cancel{-4} \quad \cancel{-4} \\ -x &= 8 \\ \boxed{x = -8} \end{aligned}$$

6. Solve for x : $(2x)^5 = \frac{3}{2x} (2x)$

$$\frac{10x}{10} = \frac{3}{10}$$

$$\boxed{x = \frac{3}{10}}$$

Literal Equation

Solve for a : $3a - b = c$

$$\begin{aligned} +b \quad +b \\ 3a - b &= c + b \\ \frac{3a}{3} - \frac{b}{3} &= \frac{c+b}{3} \\ \frac{3a}{3} &= \frac{c+b}{3} + \frac{b}{3} \\ \boxed{a = \frac{c+b}{3}} \end{aligned}$$

Solve for q : $\frac{p(q+r)}{p} = \frac{s}{p}$

$$\begin{aligned} \cancel{p} (q+r) &= \frac{s}{p} \\ q+r &= \frac{s}{p} \\ \cancel{-r} \quad \cancel{-r} \\ \boxed{q = \frac{s}{p} - r} \end{aligned}$$

Solve for b : $\frac{b}{a+c} = d$

$$\frac{b}{a+c} = d$$

$$\begin{aligned} (a) \frac{b}{a} &= d - c (a) \\ \boxed{b = (d-c)(a)} \end{aligned}$$

Solve for b : $\frac{abc}{ac} = \frac{d}{ac}$

$$\boxed{b = \frac{d}{ac}}$$

Solve for z : $(w) \frac{3y-z}{w} = 6 (w)$

$$\begin{aligned} \cancel{3} y - z &= 6w \\ \cancel{-3} y \quad \cancel{-3} y \\ -z &= 6w - 3y \\ \boxed{z = -(6w - 3y)} \end{aligned}$$

Solve for L : $(2L) A = \frac{r}{2L} (2L)$

$$\frac{2LA}{2A} = \frac{r}{2A}$$

$$\boxed{L = \frac{r}{2A}}$$