

DHW Check

Daily # 1-4

Box 1: Two Step Equations #3

Box 2: Two Step Equations # 12

5pts for the original problem

3pts for the work

2pts for the answer

Two-Step Equations HW Answers

1) $3m - 3 = -9$

$$3m - 3 + 3 = -9 + 3 \text{ (add. prop. =)}$$

$$3m = -6$$

$$\frac{3m}{3} = \frac{-6}{3} \text{ (div. prop. =)}$$

$$m = -2$$

2) $-1 - 3K = 2$

$$-1 + 1 - 3K = 2 + 1 \text{ (add. prop. =)}$$

$$-3K = 3$$

$$\frac{-3K}{-3} = \frac{3}{-3} \text{ (div. prop. =)}$$

$$K = -1$$

3) $-2 - 5r = 43$

$$-2 + 2 - 5r = 43 + 2 \text{ (add. prop. =)}$$

$$-5r = 45$$

$$\frac{-5r}{-5} = \frac{45}{-5} \text{ (div. prop. =)}$$

$$r = -9$$

4) $\frac{p}{1} - 1 = -1$

$$\frac{p}{1} - 1 + 1 = -1 + 1 \text{ (add. prop. =)}$$

$$\frac{p}{1} = 0$$

$$p = 0$$

$$\begin{aligned} 5) \quad & -2 + 2a = -16 \\ & -2 + 2 + 2a = -16 + 2 \text{ (add. prop. =)} \\ & 2a = -14 \\ & \frac{2a}{2} = \frac{-14}{2} \text{ (div. prop. =)} \\ & a = -7 \end{aligned}$$

$$\begin{aligned} 6) \quad & 4 + \frac{x}{1} = 4 \\ & 4 + x = 4 \\ & 4 - 4 + x = 4 - 4 \text{ (subt. prop. =)} \\ & x = 0 \end{aligned}$$

$$\begin{aligned} 7) \quad & 1 + \frac{n}{4} = -1 \\ & 1 - 1 + \frac{n}{4} = -1 - 1 \text{ (subt. prop. =)} \\ & \frac{n}{4} = -2 \\ & 4 \cdot \frac{n}{4} = 4 \cdot -2 \text{ (mult. prop. =)} \\ & n = -8 \end{aligned}$$

$$\begin{aligned} 8) \quad & \frac{x}{4} - 5 = -6 \\ & \frac{x}{4} - 5 + 5 = -6 + 5 \text{ (add. prop. =)} \\ & \frac{x}{4} = -1 \\ & 4 \cdot \frac{x}{4} = 4 \cdot -1 \text{ (mult. prop. =)} \\ & x = -4 \end{aligned}$$

$$9) \frac{-6+x}{3} = -3$$

$$3 \cdot \frac{-6+x}{3} = 3 \cdot -3 \text{ (mult. prop. =)}$$

$$-6+x = -9$$

$$-6+6+x = -9+6 \text{ (add. prop. =)}$$

$$x = -3$$

$$10) \frac{3+n}{7} = 2$$

$$7 \cdot \frac{3+n}{7} = 2 \cdot 7 \text{ (mult. prop. =)}$$

$$3+n = 14$$

$$3-3+n = 14-3 \text{ (subt. prop. =)}$$

$$n = 11$$

$$11) 6 + \frac{x}{5} = 3$$

$$6-6 + \frac{x}{5} = 3-6 \text{ (subt. prop. =)}$$

$$\frac{x}{5} = -3$$

$$5 \cdot \frac{x}{5} = 5 \cdot -3 \text{ (mult. prop. =)}$$

$$x = -15$$

$$12) 2 - 3n = 11$$

$$2-2-3n = 11-2 \text{ (subt. prop. =)}$$

$$-3n = 9$$

$$\frac{-3n}{-3} = \frac{9}{-3} \text{ (div. prop. =)}$$

$$n = -3$$

$$\begin{aligned} 13) \quad & -4v + 1 = 49 \\ & -4v + 1 - 1 = 49 - 1 \quad (\text{subt. prop.} =) \\ & -4v = 48 \\ & \frac{-4v}{-4} = \frac{48}{-4} \quad (\text{div. prop.} =) \\ & v = -12 \end{aligned}$$

$$\begin{aligned} 14) \quad & \frac{b+5}{2} = 2 \\ & 2 \cdot \frac{b+5}{2} = 2 \cdot 2 \quad (\text{mult. prop.} =) \\ & b+5 = 4 \\ & b+5-5 = 4-5 \quad (\text{subt. prop.} =) \\ & b = -1 \end{aligned}$$

$$\begin{aligned} 15) \quad & -7 + \frac{k}{4} = -11 \\ & -7 + 7 + \frac{k}{4} = -11 + 7 \quad (\text{add. prop.} =) \\ & \frac{k}{4} = -4 \\ & 4 \cdot \frac{k}{4} = 4 \cdot -4 \quad (\text{mult. prop.} =) \\ & k = -16 \end{aligned}$$

$$\begin{aligned} 16) \quad & \frac{3+a}{4} = -2 \\ & 4 \cdot \frac{3+a}{4} = 4 \cdot -2 \quad (\text{mult. prop.} =) \\ & 3+a = -8 \\ & 3-3+a = -8-3 \quad (\text{subt. prop.} =) \\ & a = -11 \end{aligned}$$

$$17) 7 = \frac{x}{8} + 8$$

$$7 - 8 = \frac{x}{8} + 8 - 8 \text{ (subt. prop. =)}$$

$$-1 = \frac{x}{8}$$

$$8 \cdot -1 = 8 \cdot \frac{x}{8} \text{ (mult. prop. =)}$$

$$-8 = x$$

$$18) \frac{x}{4} - 6 = -7$$

$$\frac{x}{4} - 6 + 6 = -7 + 6 \text{ (add. prop. =)}$$

$$\frac{x}{4} = -1$$

$$4 \cdot \frac{x}{4} = 4 \cdot -1 \text{ (mult. prop. =)}$$

$$x = -4$$

$$19) 3e + 2 = 8 \quad e = \# \text{ of erasers}$$

$$3e + 2 - 2 = 8 - 2 \text{ (subt. prop. =)}$$

$$3e = 6$$

$$\frac{3e}{3} = \frac{6}{3} \text{ (div. prop. =)}$$

$$e = 2$$

$$20) 10s + 18 = 348 \quad s = \#$$

$$\text{(subt. prop. =)} \quad 10s + 18 - 18 = 348 - 18$$

$$10s = 330$$

$$\text{(div. prop. =)} \quad \frac{10s}{10} = \frac{330}{10}$$

$$s = 33$$

students

on a

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Multi-Step Equations

Steps to solve multi-step equations

- 1) Simplify if necessary
 - *Get one sign in front of each term
 - *Collect like terms
 - *Distributive Property
 - *Get rid of fractions (multiply by least common denominator)
- 2) Apply the addition and/or subtraction property
- 3) Apply the division and/or multiplication property
- 4) Check your answer

Solve each equation. Show work with steps and properties.

Ex. 1) $5 = 5m - 23 + 2m$

$$5 = 7m - 23$$

$$5 + 23 = 7m - 23 + 23 \quad (\text{add prop. } =)$$

$$\frac{28}{7} = \frac{7m}{7}$$

$$4 = m$$

$$(\text{div prop. } =)$$

Ex. 2) $11c - 8 - 6c = 22$

$$5c - 8 = 22$$

$$5c - 8 + 8 = 22 + 8 \quad (\text{add prop} =)$$

$$5c = 30$$

$$\frac{5c}{5} = \frac{30}{5} \quad (\text{div prop} =)$$

$$\boxed{c = 6}$$

$$\text{Ex. 3) } -2y + 5 + 5y = 14$$

$$-2y + 5 + 5y = 14$$

$$3y + 5 = 14$$

$$3y + 5 - 5 = 14 - 5 \text{ (subt. prop. =)}$$

$$3y = 9 \rightarrow \frac{3y}{3} = \frac{9}{3} \text{ (div. prop. =)}$$

$$y = 3$$

$$\text{Ex. 4) } \frac{3x}{4} - \frac{x}{3} = 10$$

$$12 \left(\frac{3}{4}x - \frac{x}{3} \right) = 12(10) \quad (\text{mult. prop.} =)$$

$$\frac{12}{1} \left(\frac{3}{4} \right)$$

$$\frac{36}{4}$$

$$9$$

$$\frac{12}{3} \left(\frac{1}{3} \right)$$

$$\frac{12}{3}$$

$$4$$

$$9x - 4x = 120$$

$$5x = 120$$

$$\frac{5x}{5} = \frac{120}{5} \quad (\text{div. prop.} =)$$

$$x = 24$$

Solving Multi-Step Equations

Try These: Solve. Show work with steps

(a) $5x + 3(x + 4) = 28$ (b) $4x - 3(x - 2) = 21$

(c) $2x - 5(x - 9) = 27$ (d) $12 = \frac{3}{10}(x + 2)$

Solving Multi-Step Equations

Try These: Solve. Show work with steps

(a) $5x + 3(x + 4) = 28$ (b) $4x - 3(x - 2) = 21$

$5x + 3x + 12 = 28$ (dist. prop.) $4x - 3x + 6 = 21$ (dist. prop.)

$8x + 12 = 28$ $x + 6 = 21$

$8x + 12 - 12 = 28 - 12$ (subt. prop.) $x + 6 - 6 = 21 - 6$ (subt. prop.)

$8x = 16$ $x = 15$

$\frac{8x}{8} = \frac{16}{8}$ (div. prop.)

$x = 2$

(c) $2x - 5(x - 9) = 27$ (d) $12 = \frac{3}{10}(x + 2)$

$2x - 5x + 45 = 27$ (dist. prop.) $10 \cdot 12 = 10 \cdot \frac{3}{10}(x + 2)$ (mult. prop.)

$-3x + 45 = 27$ $120 = 3(x + 2)$

$-3x + 45 - 45 = 27 - 45$ (subt. prop.) $120 = 3x + 6$ (dist. prop.)

$-3x = -18$ $120 - 6 = 3x + 6 - 6$ (subt. prop.)

$\frac{-3x}{-3} = \frac{-18}{-3}$ (div. prop.) $114 = 3x$

$x = 6$ $\frac{114}{3} = \frac{3x}{3}$ (div. prop.) $\frac{114}{3} = x$

Solving Multi-Step Equations

(e) $7x - 3x - 8 = 24$

(f) $3x - x + 15 = 41$

(g) $25x - 16x - 24 = -65$

(h) $\frac{2}{5}x - \frac{1}{5}x + 9 = -1$

Solving Multi-Step Equations

$$(e) 7x - 3x - 8 = 24$$

$$4x - 8 = 24$$

$$4x - 8 + 8 = 24 + 8 \text{ (add.)}$$

$$4x = 32$$

$$\frac{4x}{4} = \frac{32}{4} \text{ (div. prop.)}$$

$$x = 8$$

$$(g) 25x - 16x - 24 = -65$$

$$9x - 24 = -65$$

$$9x - 24 + 24 = -65 + 24 \text{ (add.)}$$

$$9x = -41$$

$$\frac{9x}{9} = \frac{-41}{9} \text{ (div. prop.)}$$

$$x = -\frac{41}{9}$$

$$(f) 3x - x + 15 = 41$$

$$2x + 15 = 41$$

$$2x + 15 - 15 = 41 - 15 \text{ (subt.)}$$

$$2x = 26$$

$$\frac{2x}{2} = \frac{26}{2} \text{ (div. prop.)}$$

$$x = 13$$

$$(h) \frac{2}{5}x - \frac{1}{5}x + 9 = -1$$

$$\frac{1}{5}x + 9 = -1$$

$$\frac{1}{5}x + 9 - 9 = -1 - 9 \text{ (subt.)}$$

$$\frac{1}{5}x = -10$$

$$5 \cdot \frac{1}{5}x = 5 \cdot -10 \text{ (mult.)}$$

$$x = -50$$

HW: Multi-Step Equations Worksheet EVENS