

# Unit 5: Linear Equations

A: One-Step Equations  $a x = b$ ;  $\frac{x}{a} = b$

1. Perform the opposite operation to solve.

$\times$  opposite is  $\div$

$\div$  opposite is  $\times$ .

Examples:

1. Solve.

a)  $-4x = 32$

$$\begin{array}{r} +4 \\ \hline -4x = 32 \\ \hline +4 \end{array} \quad \frac{-4}{-4}$$

$-4x$  is  $-4 \times x$  opp is  $\div$

$$\boxed{x = -8}$$

b)  $-12 = \frac{x}{6}$

$\frac{x}{6}$  is  $x \div 6$  opp is  $\times$

$$(-12)(6) = \left(\frac{x}{6}\right)(6)$$

$$\boxed{-72 = x}$$

c)  $-24 = 6y$   $6y$  is  $6 \times y$  opp is  $\div$

$$\frac{-24}{6} = \frac{6y}{6}$$

$$\boxed{-4 = y}$$

$$d) -60 = \frac{t}{4} \quad \frac{t}{4} \text{ is } t \div 4 \quad \text{opp is } \times$$

$$4)(-60) = \left(\frac{t}{4}\right)(4)$$

$$\boxed{-240 = t}$$

$$e) 4k = -16$$

$$\frac{4k}{4} = \frac{-16}{4}$$

$$k = -4$$

$$f) \frac{x}{-6} = -6$$

$$\left(\frac{x}{-6}\right)(-6) = -6(-6)$$

$$\boxed{x = 36}$$

2. Solve the equation. Verify your answer.

$$a) \frac{t}{6} = -24$$

Verify:

$$\frac{t}{6} = -24$$

$$\left(\frac{t}{6}\right)(6) = -24(6)$$

$$t = -144$$

$$\frac{-144}{6} = -24$$

$$-24 = -24 \checkmark$$

$$b) -4h = -84$$

Verify:

$$\frac{-4h}{-4} = \frac{-84}{-4}$$

$$-4h = -84$$

$$-4(21) = -84$$

$$\boxed{h = 21}$$

$$-84 = -84 \checkmark$$

$$c) 24 = \frac{h}{-20}$$

$$24 = \left(\frac{h}{-20}\right)(-20)$$

$$-480 = h$$

Verify

$$24 = \frac{h}{-20}$$

$$24 = \frac{-480}{-20}$$

$$24 = 24 \checkmark$$

$$d) 28k = -140$$

$$\frac{28k}{28} = \frac{-140}{28}$$

$$k = -5$$

Verify:

$$28k = -140$$

$$28(-5) = -140$$

$$-140 = -140 \checkmark$$

Assignment: <sup>377</sup>7-18

\* 7-10 solve normally.

