

Chapter 6 - Linear Equations and Inequalities

Section 6.1 - Solving Equations by Using Inverse Operations

Ⓐ Solving one-step equations

Examples: ① a number plus 5 is 20

$$\begin{array}{l}
 n + 5 = 20 \\
 n = 20 - 5 \\
 n = \boxed{15}
 \end{array}
 \qquad
 \begin{array}{l}
 n + 5 = 20 \\
 n + 5 - 5 = 20 - 5 \\
 n = 15
 \end{array}$$

↙ equals

② four times a number is -32

$$\begin{array}{l}
 \cancel{4}n = \frac{-32}{\cancel{4}} \\
 n = -8
 \end{array}$$

③ $3n = -3.6$

$$\begin{array}{l}
 \cancel{3}n = \frac{-3.6}{\cancel{3}} \\
 n = -1.2
 \end{array}$$

④ $\cancel{3} \frac{x}{\cancel{3}} = 5(\cancel{3})$

$$x = 15$$

Ⓑ Solving two-step equations

Examples ①: $3x + 4 = -5$

move first

$$3x = -5 - 4$$

$$\frac{3x}{3} = \frac{-9}{3}$$

then divide

$$x = -3$$

② $2(-2 + w) = 18$

$$-4 + 2w = 18$$

$$2w = 18 + 4$$

$$\frac{2w}{2} = \frac{22}{2}$$

$$w = 11$$

③ $4.5d - 3.2 = -18.5$

$$4.5d = -18.5 + 3.2$$

$$\frac{4.5d}{4.5} = \frac{-15.3}{4.5}$$

$$d = -3.4$$

$$\textcircled{4} \frac{r}{4} + 3 = 7.2$$

$$\frac{r}{4} = 7.2 - 3$$

$$\textcircled{4} \frac{r}{4} = 4.2 \textcircled{4}$$

$$r = 16.8$$

$$\textcircled{5} \frac{x}{2} - 6 = 1$$

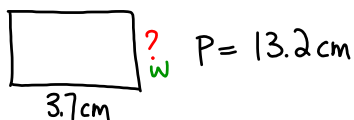
$$\frac{x}{2} = 1 + 6$$

$$\textcircled{2} \frac{x}{2} = 7 \textcircled{2}$$

$$x = 14$$

© Using an equation to model and solve a problem

Example 1: pg 270



a) Write an equation

$$P = 2(3.7 + w)$$

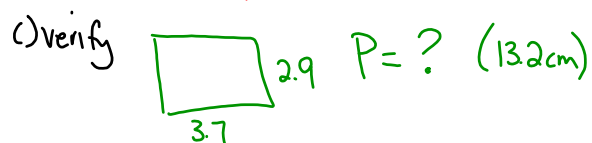
b) Solve $13.2 = 2(3.7 + w)$

$$13.2 = 7.4 + 2w \quad \leftarrow 7.4 + 2w = 13.2$$

$$13.2 - 7.4 = 2w$$

$$\frac{5.8}{2} = \frac{2w}{2}$$

$$2.9 \text{ cm} = w$$



$$\begin{aligned} P &= 3.7 + 3.7 + 2.9 + 2.9 \text{ or } P = 2(3.7) + 2(2.9) \\ &= 7.4 + 5.8 \\ &= 13.2 \text{ cm} \quad \checkmark \end{aligned}$$

① using an equation to solve a percent problem

Example: Seven percent of a number is 56.7.

a) write, then solve an equation to determine the number.

b) check the solution.

Solution:

$$a) \quad 7\% n = 56.7 \qquad 7\% = 0.07$$

$$\frac{0.07n}{0.07} = \frac{56.7}{0.07}$$

$$n = 810$$

$$b) \quad 7\% \text{ of } 810 = ? \quad (56.7)$$

$$0.07(810) \stackrel{?}{=} 56.7$$

$$56.7 = 56.7 \quad \checkmark$$

Complete: pg 271-274
 #'s 5-11, 14-18, 20
 (Just solve)

