

## 7-1 Ratios + Proportions

ratio: a comparison of two quantities.  
( $a:b$  or  $\frac{a}{b}$ )

proportion: a statement that two ratios are =.

Cross-Product Property:

$$\frac{a}{b} = \frac{c}{d} \text{ is equivalent to } ad = bc$$

Practice:

- 1) If the American flag must have a width to length ratio of 10 to 19, how long must a flag that is 50 ft. wide be?

$$\frac{10}{19} = \frac{50}{x} \rightarrow \frac{10x}{19} = \frac{950}{19} \rightarrow \boxed{x=95}$$

- 2) A map's scale is 1" : 40 mi. How far apart are two towns that appear 9.75 inches apart on the map?

$$\frac{1}{40} = \frac{9.75}{x} \rightarrow \boxed{x=390}$$

Solve:  
3. A recipe that serves 15 people calls for 4 pounds of pork. If a chef is serving 25 people, how much pork will she need?

$$\frac{15}{4} = \frac{25}{x} \rightarrow 15x = 100$$
$$\boxed{x \approx 6.7 \text{ pounds}}$$

4) Solve:  $\frac{10}{17} = \frac{k}{2k-3}$

$$10(2k-3) = 17k$$

$$20k - 30 = 17k$$

$$-30 = -3k$$

$$\boxed{k = 10}$$

5) Solve:  $\frac{n+0.3}{n-3.2} = \frac{9}{2}$

$$9(n-3.2) = 2(n+0.3)$$

$$9n - 28.8 = 2n + 0.6$$

$$7n - 28.8 = 0.6$$

$$7n = 29.4$$

$$\boxed{n = 4.2}$$

Solve:

$$6) \frac{3-4x}{1+5x} = \frac{1}{2+3x}$$

$$1+5x = (3-4x)(2+3x)$$

$$1+5x = 6+9x-8x-12x^2$$

$$0 = -12x^2 - 4x + 5$$

$$-12x^2 - 4x + 5 = 0$$

$$12x^2 + 4x - 5 = 0$$

$$12x^2 + 10x - 6x - 5 = 0$$

$$2x(6x+5) - 1(6x+5) = 0$$

$$(6x+5)(2x-1) = 0$$

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

$\textcircled{-60}$	$\textcircled{4}$
P.	S.
$10 \cdot (-6)$	$10 + (-6)$

$$7) \frac{x-3}{3} = \frac{2}{x+2}$$

$$6 = (x-3)(x+2)$$

$$x^2 + 2x - 3x - 6 = 6$$

$$x^2 - x - 12 = 0$$

$$(x-4)(x+3) = 0$$

$$\boxed{x = 4, -3}$$

Hw: p. 368:

1-2;

13-19 (ODD)

25-28

35-42