

April 5th, 2016

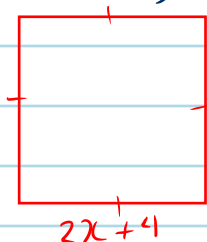
Unit 4 Day 5

4-4 Proportion Equations

1) $\frac{2}{3}x - 4 = \frac{x}{2}$ *Clear fractions

$$4x - 24 = 3x$$
$$-3x + 24 - 3x + 24$$
$$x = 24$$

2) If the side of a square is given by the expression $2x + 4$, and its perimeter is 80, solve for x .



$$4(2x + 4) = 80$$
$$8x + 16 = 80$$
$$-16 \quad -16$$
$$\frac{8x}{8} = \frac{64}{8}$$
$$x = 8$$

$$\frac{4(2x + 4)}{4} = \frac{80}{4}$$
$$2x + 4 = 20$$

Proportion Equation: an equation with a single fraction on either side

We often solve proportion equations with "Cross Multiplication"

3) $\frac{2}{5} = \frac{x}{8}$

$$5x = 2 \cdot 8$$
$$\frac{5x}{5} = \frac{16}{5}$$

$$x = \frac{16}{5}$$

Why? Clear Fractions! $\frac{2}{5} = \frac{x}{8}$

$$16 = 5x$$

$$4) \frac{3}{8} = \frac{x}{12}$$

$$8x = 3 \cdot 12$$

$$\frac{8x}{8} = \frac{36}{8}$$

$$x = \frac{9}{2}$$

$$5) \frac{15}{x} = \frac{9}{4}$$

$$\frac{9x}{9} = \frac{60}{9}$$

$$x = \frac{20}{3}$$

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

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

$$8x+4 = 9x-3$$

$$-8x+3 \quad -8x+3$$

$$7 = x$$

$$x = 7$$

$$7) \frac{3x+2}{4} = \frac{2x-3}{5}$$

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

$$15x+10 = 8x-12$$

$$-8x-10 \quad -8x-10$$

$$7x = -22$$

$$\frac{7x}{7} = \frac{-22}{7}$$

$$x = -\frac{22}{7}$$

Practice: Unit 4 Day 5