

Learning Activity – Section 1.6 – Absolute Value Equations

Names: Stu 5

Solve the equations, and write each solution set.

1. $|3x| = 24$

$$3x = 24 \quad \text{or} \quad 3x = -24$$

$$x = 8 \quad \text{or} \quad x = -8$$

$$\{8, -8\} \quad \checkmark$$

2. $5 = |x+3| - 7$

$$12 = |x+3|$$

$$\therefore x+3 = 12 \quad \text{or} \quad x+3 = -12$$

$$x = 9$$

$$x = -15$$

$$\{9, -15\}$$

3. $\frac{|7-2x|}{6} + 5 = 5$

$$\frac{|7-2x|}{6} = 0$$

$$|7-2x| = 0$$

$$\therefore 7-2x = 0$$

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

4. $\left|2 - \frac{1}{3}w\right| - \frac{1}{5} = \frac{1}{2}$

$$\left|2 - \frac{1}{3}w\right| = \frac{1}{5} + \frac{1}{2}$$

$$\left|2 - \frac{1}{3}w\right| = \frac{7}{10}$$

$$\therefore 2 - \frac{1}{3}w = \frac{7}{10} \quad \text{or} \quad 2 - \frac{1}{3}w = -\frac{7}{10}$$

mult by 30 both sides

$$60 - 10w = 21$$

$$39 = 10w$$

$$\frac{39}{10} = w$$

$$60 - 10w = -21$$

$$81 = 10w$$

$$w = \frac{81}{10}$$

5. $|-2p+1| + 7 = 3$

$$|-2p+1| = -4$$

no solution

$$\{ \}$$

$$\left\{ \frac{39}{10}, \frac{81}{10} \right\}$$