

Absolute Value Equation Practice

Name: Key

Date: \_\_\_\_\_ Period: \_\_\_\_\_

Solve the equation. Show all steps and circle your solution.

1.  $|4x+1|=15$  III

$$\begin{array}{l} 4x+1=15 \quad \text{or} \quad 4x+1=-15 \\ 4x=14 \quad \quad \quad 4x=-16 \\ x=\frac{7}{2} \quad \text{or} \quad x=-4 \end{array}$$

$x = -4, \frac{7}{2}$

2.  $|7x+2|=23$  III

$$\begin{array}{l} 7x+2=23 \quad \text{or} \quad 7x+2=-23 \\ 7x=21 \quad \quad \quad 7x=-25 \\ x=3 \quad \quad \quad \text{or} \quad x=-\frac{25}{7} \end{array}$$

$x = -\frac{25}{7}, 3$

3.  $|5-2x|=9$  III

$$\begin{array}{l} 5-2x=9 \quad \text{or} \quad 5-2x=-9 \\ -2x=4 \quad \quad \quad -2x=-14 \\ x=-2 \quad \quad \quad \text{or} \quad x=7 \end{array}$$

$x = -2, 7$

4.  $\frac{-|2x-2|=15}{-1 \quad -1}$

$$|2x-2| = -15 \quad \text{I}$$

No Real Solution

5.  $|x-8|-9=-5$

$$|x-8|=4 \quad \text{III}$$

$$\begin{array}{l} x-8=4 \quad \text{or} \quad x-8=-4 \\ x=12 \quad \quad \quad \text{or} \quad x=4 \end{array}$$

$x = 4, 12$

6.  $\frac{-6|10-2x|=24}{-6 \quad -6}$

$$|10-2x| = -4 \quad \text{I}$$

No Real Solution

$$7. \quad \frac{-3|4x+3|}{-3} = \frac{-9}{-3}$$

$$|4x+3| = 3 \quad \text{III}$$

$$4x+3=3 \quad \text{or} \quad 4x+3=-3$$

$$4x=0$$

$$x=0$$

$$4x=-6$$

$$x = -\frac{3}{2}$$

$$\boxed{x = -\frac{3}{2}, 0}$$

$$9. \quad |3x-8| + 0.25 = 0.75$$

$$|3x-8| = .5 \quad \text{III}$$

$$3x-8 = \frac{1}{2} \quad \text{or} \quad 3x-8 = -\frac{1}{2}$$

$$3x = \frac{17}{2}$$

$$x = \frac{17}{6}$$

$$3x = \frac{15}{2}$$

$$\text{or} \quad x = \frac{5}{2}$$

$$\boxed{x = \frac{5}{2}, \frac{17}{6}}$$

$$11. \quad |-3x+5| - 5 = -5$$

$$|-3x+5| = 0 \quad \text{II}$$

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$$-3x+5=0$$

$$-3x = -5$$

$$\boxed{x = \frac{5}{3}}$$

$$8. \quad \frac{1}{3}|1-8x| = 2$$

$$\frac{x3}{x3} \quad \frac{x3}{x3}$$

$$|1-8x| = 6 \quad \text{III}$$

$$1-8x=6$$

$$-8x=5$$

$$x = -\frac{5}{8}$$

$$\text{or} \quad 1-8x=-6$$

$$-8x=-7$$

$$\text{or} \quad x = \frac{7}{8}$$

$$\boxed{x = -\frac{5}{8}, \frac{7}{8}}$$

$$10. \quad |6x+5| - 1.3 = 1.9$$

$$|6x+5| = 3.2 \quad \text{III}$$

$$6x+5 = \frac{16}{5}$$

$$6x = -\frac{9}{5}$$

$$x = -\frac{3}{10}$$

$$\text{or} \quad 6x+5 = -\frac{16}{5}$$

$$6x = -\frac{41}{5}$$

$$\text{or} \quad x = -\frac{41}{30}$$

$$\boxed{x = -\frac{41}{30}, -\frac{3}{10}}$$

$$12. \quad 15 - |4+2x| = 10$$

$$\frac{-|4+2x|}{-1} = \frac{-5}{-1}$$

$$|4+2x| = 5 \quad \text{III}$$

$$4+2x=5$$

$$2x=1$$

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

$$\text{or} \quad 4+2x=-5$$

$$2x=-9$$

$$\text{or} \quad x = -\frac{9}{2}$$

$$\boxed{x = -\frac{9}{2}, \frac{1}{2}}$$