

Algebra Assessment Review

Solve each equation

(1) $2d + 5 = 8d + 2$

$$\begin{array}{r} -2d \quad -2d \\ 5 = 6d + 2 \\ -2 \quad -2 \end{array}$$

$$\frac{3}{6} = \frac{6d}{6}$$

$\frac{1}{2} = d$
or
 $0.5 = d$

(3) $14 - x = -7$

$$\begin{array}{r} -14 \quad -14 \\ -x = -21 \end{array}$$

$$\frac{-x}{-1} = \frac{-21}{-1}$$

$x = 21$

(2) $\frac{5}{7}x - 4 = \frac{3}{7}x + 1$

$$\begin{array}{r} +4 \quad +4 \\ -\frac{3}{7}x \quad -\frac{3}{7}x \end{array}$$

$$\frac{7}{2} \cdot \frac{2}{7}x = 5 \cdot \frac{7}{2}$$

$x = \frac{35}{2}$ or 17.5

(4) $|x - 3| = 17$

Pos

$$\begin{array}{r} x - 3 = 17 \\ +3 \quad +3 \end{array}$$

$x = 20$

Neg

$$\begin{array}{r} x - 3 = -17 \\ +3 \quad +3 \end{array}$$

$x = -14$

(5) $\frac{8|x - 3|}{8} = \frac{88}{8}$

$$|x - 3| = 11$$

Pos

$$\begin{array}{r} x - 3 = 11 \\ +3 \quad +3 \end{array}$$

$x = 14$

Neg

$$\begin{array}{r} x - 3 = -11 \\ +3 \quad +3 \end{array}$$

$x = -8$

(6) $|x - 3| + 7 = 2$

$$\begin{array}{r} -7 \quad -7 \\ |x - 3| = -5 \end{array}$$

Pos

$$\begin{array}{r} x - 3 = -5 \\ +3 \quad +3 \end{array}$$

$x \neq -2$

Neg

$$\begin{array}{r} x - 3 = 5 \\ +3 \quad +3 \end{array}$$

$x \neq 8$

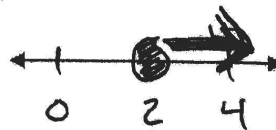
No Solution

(7) $8x - 6 \geq 10$. Graph the solution on a number line.

$$\begin{array}{r} +6 \quad +6 \end{array}$$

$$\frac{8x}{8} \geq \frac{16}{8}$$

$x \geq 2$



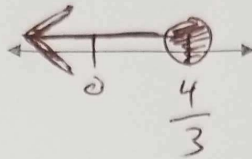
(8) $q - 2(2 - q) \leq 0$. Graph the solution on a number line.

$$q - 4 + 2q \leq 0$$

$$3q - 4 \leq 0$$

$$3q \leq 4$$

$$q \leq \frac{4}{3}$$



(9) $1 - 8u \leq 3u - 10$. Graph the solution on a number line.

$$+8u +8u$$

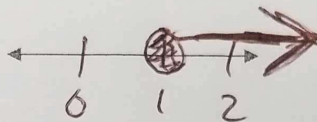
$$1 \leq 11u - 10$$

+10

$$\frac{11}{11} \leq \frac{11u}{11}$$

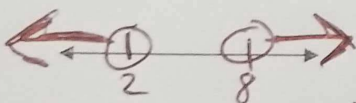
$$1 \leq u$$

$$u \geq 1$$



Solve and graph the solution on a number line

(10) $3x + 1 < 7$ or $7 < 2x - 9$



$$3x + 1 < 7$$

$$\frac{3x}{3} < \frac{6}{3}$$

$$x < 2$$

$$7 < 2x - 9$$

$$\frac{16}{2} < \frac{2x}{2}$$

$$8 < x$$

(11) $-8 \leq 3y - 20 < 52$

$$\begin{matrix} -8 \leq 3y - 20 \\ +20 & +20 \end{matrix} \quad \text{and}$$

$$\frac{12}{3} \leq \frac{3y}{3}$$

$$4 \leq y$$

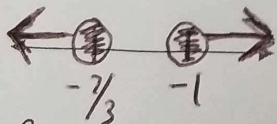
$$\begin{matrix} -8 \leq 3y - 20 < 52 \\ +20 & +20 \end{matrix}$$

$$\frac{3y}{3} < \frac{72}{3}$$

$$y < 24$$

(12) $|3b + 5| \leq -2$

(13) $|2w| \geq 5$



OR

$$3b + 5 \leq -2$$

$$3b \leq -7$$

$$b \leq -\frac{7}{3}$$

OR

$$3b + 5 \geq 2$$

$$-5 \quad -5$$

$$\frac{3b}{3} \geq -\frac{3}{3}$$

$$b \geq -1$$

$$\begin{matrix} \text{OR} \\ 2w \geq 5 \\ \frac{2w}{2} \geq \frac{5}{2} \end{matrix}$$

$$w \geq \frac{5}{2}$$

$$\begin{matrix} \text{OR} \\ 2w \leq -5 \\ \frac{2w}{2} \leq -\frac{5}{2} \end{matrix} \quad w \leq -\frac{5}{2}$$

