

Quiz Review 1a:

Linear Equations and Piecewise Functions

Name: Key

Date: _____ Per: _____

Solve each equation. Check your solution.

$$1) \quad 56r + 64 = -34 + 7r$$

$$\begin{array}{r} -7r \\ 49r + 64 = -34 \\ -64 \quad -64 \end{array}$$

$$\frac{49r}{49} = \frac{-98}{49}$$

$$\boxed{r = -2}$$

$$2) \quad -11(10p - 10) = -110p + 23$$

$$\begin{array}{r} -110p + 110 = -110p + 23 \\ +110p \quad \quad +110p \end{array}$$

$$110 = 23$$

No solution

$$3) \quad -7(6 + 10x) - 8x = -6(7 + 12x) + 3x$$

$$-42 - 70x - 8x = -42 - 72x + 3x$$

$$\begin{array}{r} -42 - 78x = -42 - 69x \\ +78x \quad \quad +78x \end{array}$$

$$\begin{array}{r} -42 = -42 + 3x \\ +42 \quad +42 \end{array}$$

$$\frac{0}{3} = \frac{3x}{3}$$

$$\boxed{x = 0}$$

Solve each equation for the indicated variable.

$$4) \quad tx - ux = 3t, \text{ for } x$$

$$\frac{x(t-u)}{t-u} = \frac{3t}{t-u}$$

$$\boxed{x = \frac{3t}{t-u}}$$

$$5) \quad P = 2l + 2w, \text{ for } l$$

$$\begin{array}{r} -2w \quad -2w \\ P - 2w = 2l \end{array}$$

$$\frac{P-2w}{2} = \frac{2l}{2}$$

$$\boxed{l = \frac{P-2w}{2}}$$

$$6) \frac{x-3}{6} + 3 = a, \text{ for } x$$

$$6\left(\frac{x-3}{6}\right) = (a-3)6$$

$$x-3 = 6a-18$$

$$\boxed{x = 6a - 15}$$

$$7) A = \frac{1}{2}bh, \text{ for } h$$

$$2(A) = 2\left(\frac{1}{2}bh\right)$$

$$\frac{2A}{b} = \frac{bh}{b}$$

$$\boxed{h = \frac{2A}{b}}$$

Write an equation for each line in slope-intercept form that satisfies each set of conditions.

8) Passes through ~~(-2, 1)~~ and ~~(2, 4)~~ $(-3, 1)$ and $(6, 4)$
 x_1, y_1 x_2, y_2

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 1}{6 - (-3)} = \frac{3}{9} = \frac{1}{3}$$

$$y = \frac{1}{3}x + b \rightarrow 1 = \frac{1}{3}(-3) + b$$

$$1 = -1 + b$$

$$+1 \quad +1$$

$$b = 2$$

$$\boxed{y = \frac{1}{3}x + 2}$$

9) Passes through ~~(1, 2)~~ and parallel to $y = -5x + 3$
 $(3, 4)$

$$y = -5x + b$$

$$4 = -5(3) + b$$

$$4 = -15 + b$$

$$+15 \quad +15$$

$$b = 19$$

$$\boxed{y = -5x + 19}$$

10) Passes through $(-3, 2)$ and perpendicular to $y = 3x + 1$

$$y = -\frac{1}{3}x + b$$

$$2 = -\frac{1}{3}(3) + b$$

$$2 = -1 + b$$

$$+1 \quad +1$$

$$b = 3$$

$$\boxed{y = -\frac{1}{3}x + 3}$$

Write an equation for each line in **standard form**.

11) $2(y - 2) = \frac{1}{2}(x + 4)$

$$2y - 4 = x + 4$$

$$\begin{array}{r} -x \\ -x - 2y - 4 = 4 \\ + 4 + 4 \end{array}$$

$$-1(-x - 2y) = (-8)(-1)$$

$$\boxed{x + 2y = -8}$$

12) $y = -\frac{4}{3}x + 3$

$$+\frac{4}{3}x \quad +\frac{4}{3}x$$

$$3\left(\frac{4}{3}x + y\right) = (3)(3)$$

$$\boxed{4x + 3y = 9}$$

Write an equation for each line in **point-slope form** satisfies each set of conditions.

13) Passes through (0, 1) and (-2, 3)

$$m = \frac{3-1}{-2-0} = \frac{2}{-2} = -1$$

$$y - 1 = -(x - 0) \quad \text{OR} \quad y - 3 = -(x - (-2))$$

$$y - 1 = -x$$

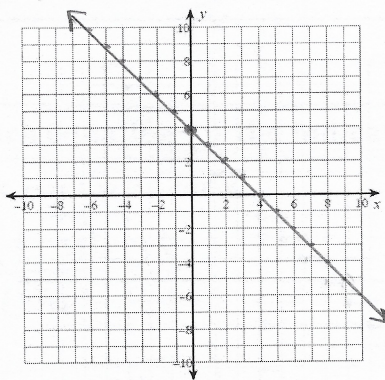
$$y - 3 = -(x + 2)$$

14) Passes through (5, -2) and has a slope of $\frac{2}{7}$.

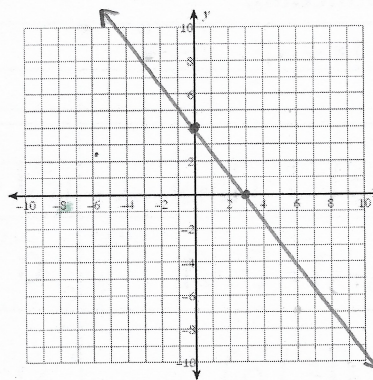
$$\boxed{y + 2 = \frac{2}{7}(x - 5)}$$

Graph each equation.

15) $y = -x + 4$



16) $4x + 3y = 12$



$$\begin{array}{l} \text{x-int} \\ 4x = 12 \\ 4 \quad 4 \\ x = 3 \end{array}$$

$$\begin{array}{l} \text{y-int} \\ 3y = 12 \\ 3 \quad 3 \\ y = 4 \end{array}$$

17) Madeja had \$250 in her savings account when she decided to start tutoring. She decides to charge \$15 an hour.

a. Write an equation in slope-intercept form that represents this situation.

$$y = 15x + 250$$

b. What does the slope represent in this situation?

She's earning \$15 per 1 hour.

c. What does the y-intercept represent in this situation?

She started with \$250 at hour 0.