

## Algebra II Pre-Course Test Review

Solve the equation.

$$1. \frac{7}{8}x - 9 = 2$$

$$\left(\frac{7}{7}\right)\frac{7}{8}x = \frac{11}{1}\left(\frac{7}{7}\right)$$

$$2. 18 = -d + 8$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$10 = -d$$

$$3. 2 = \frac{10+z}{3}$$

$$\begin{array}{r} -10 \\ -10 \end{array}$$

$$-16 = z$$

$$4. 32 - 8 + 2k = 36$$

$$\begin{array}{r} 24 + 2k = 36 \\ -24 \quad -24 \end{array}$$

$$2k = 12$$

$$5. 4(y+6) = 60$$

$$\begin{array}{r} 4y + 24 = 60 \\ -24 \quad -24 \end{array}$$

$$4y = 36$$

$$6. \frac{6p}{7} - 25 = -49$$

$$\left(\frac{2}{6}\right)\frac{6p}{7} = \frac{1}{1}\left(\frac{2}{6}\right)$$

$$7. 3p - 1 = 5(p - 1) - 2(7 - 2p)$$

$$3p - 1 = 5p - 5 - 14 + 4p$$

$$3p - 1 = 9p - 19$$

$$8. 4x + 2 = 2x - 4$$

$$\begin{array}{r} -2x \\ -2x \end{array}$$

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

$$\begin{array}{r} 2x = -6 \\ \frac{2x}{2} = \frac{-6}{2} \end{array}$$

$$x = -3$$

$$x = \frac{88}{7} \approx 12.57 \text{ or } 12\frac{4}{7}$$

$$d = -10$$

$$z = -16$$

$$k = 6$$

$$y = 9$$

$$p = -28$$

$$\begin{array}{r} 3p - 1 = 9p - 19 \\ -3p \quad -3p \end{array}$$

$$\begin{array}{r} -1 = 6p - 19 \\ +19 \quad +19 \end{array}$$

$$18 = 6p$$

$$p = 3$$

$$\begin{array}{l} 6p = -168 \\ p = -28 \end{array}$$

9.  $8d + 3d - d - 9 = 6d$

$$\begin{array}{r} 10d - 9 = 6d \\ \underline{-10d} \quad \underline{-10d} \\ -9 = -4d \end{array}$$

$$\frac{-9}{-4} = \frac{-1d}{-4}$$

$$d = \frac{9}{4} = 2\frac{1}{4} \text{ or } 2.25$$

Find the slope of the line that passes through the pair of points.

10.  $(5, 7), (6, -3)$

$$m = \frac{-3 - 7}{6 - 5} = \frac{-10}{1} = -10$$

Find the slope and y-intercept of the line.

11.  $y = \frac{5}{4}x - 10$

Slope:  $m = \frac{5}{4}$

y-int:  $b = -10$

12.  $20x + 2y = 68$

$$\begin{array}{r} 20x + 2y = 68 \\ \underline{-20x} \quad \underline{-20x} \\ 2y = -20x + 68 \\ \underline{\phantom{2y}} \quad \underline{\phantom{2y}} \quad \underline{\phantom{2y}} \\ y = -10x + 34 \end{array}$$

$$y = -10x + 34$$

Slope:  $m = -10$

y-int:  $b = 34$

Write an equation of a line with the given slope and y-intercept.

13.  $m = 2, b = 10$

$$y = 2x + 10$$

14.  $m = \frac{3}{2}, b = \frac{1}{2}$

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

15. Write  $y = \frac{5}{3}x + 6$  in standard form using integers.

$$5y = 3x + 30$$

$$-3x$$

$$\begin{array}{r} (-1) \quad (-1) \quad (-1) \\ \underline{-3x + 5y = 30} \\ 3x - 5y = -30 \end{array}$$

$$3x - 5y = -30$$

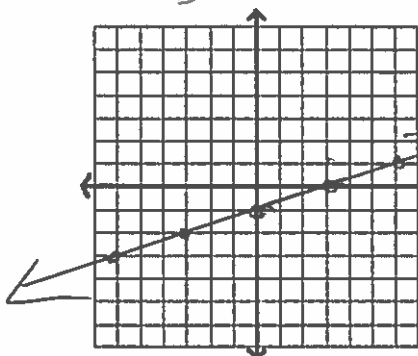
$$\text{or } -3x + 5y = 30$$

16. Use the slope and y-intercept to graph the equation.

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

$m$     $b$

$$m = \frac{+1}{+3}$$

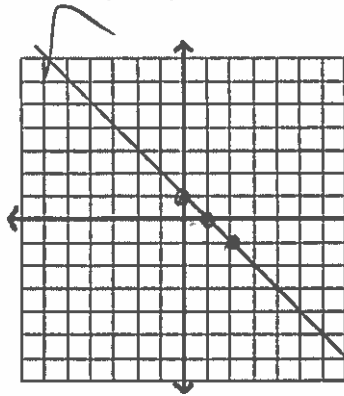


$$b = -1$$

Graph the equation.

17.  $y + 1 = -(x - 2)$

$$\frac{y+1}{+1} = \frac{-1x+2}{-1}$$



$$y = -1x + 1$$

$$m = \frac{-1}{+1}$$

$$b = 1$$

(a) Write an equation in point-slope form for the line through the given point with the given slope. Then change it to standard form. (b)

18.  $(4, 7); m = -3$

$$(a) y - 7 = -3(x - 4)$$

$$(b) \frac{y-7}{+7} = \frac{-3x+12}{+7}$$

$$y = -3x + 19$$

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


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$$(3x + 19 = 19)$$

19. A line passes through  $(-6, 6)$  and  $(-3, 8)$ .  
 a. Find the slope of the line.

$$m = \frac{8-6}{-3-(-6)} = \frac{8-6}{-3+6} = \frac{2}{3}$$

- b. Write an equation for the line in point-slope form.

$$y - 6 = \frac{2}{3}(x + 6)$$

- c. Rewrite the equation in standard form using integers.

$$(3) y = \frac{2}{3}x + 10$$

$$-2x + 3y = 30 \quad \text{or} \quad 2x - 3y = -30$$

- Solve the equation using square roots.

20.  $7x^2 + 6 = 13$

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

$$x = \pm 1$$

- Solve the equation by factoring.

21.  $z^2 - 2z - 15 = 0$

$$(z - 5)(z + 3) = 0$$

$$z = 5, -3$$

22.  $z^2 - 11z + 30 = 0$

$$(z - 6)(z - 5) = 0$$

$$z = 6, 5$$

- Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

23.  $2a^2 - 46a + 252 = 0$

$$a = \frac{-(-46) \pm \sqrt{(-46)^2 - 4(2)(252)}}{2(2)}$$

$$= \frac{46 \pm \sqrt{2116 - 2016}}{4}$$

$$= \frac{46 \pm \sqrt{100}}{4} = \frac{46 \pm 10}{4}$$

$$\left\{ \begin{aligned} \frac{46+10}{4} &= \frac{56}{4} = 14 \\ \frac{46-10}{4} &= \frac{36}{4} = 9 \end{aligned} \right.$$

24.  $6y^2 - 3y = 11$

$$6y^2 - 3y - 11 = 0$$

$$b = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(6)(-11)}}{2(6)}$$

$$= \frac{3 \pm \sqrt{9 + 264}}{12} = \frac{3 \pm \sqrt{273}}{12}$$

$$= \frac{3 \pm 16.52}{12} \left\{ \begin{aligned} \frac{19.52}{12} &= 1.63 \\ \frac{-13.52}{12} &= -1.13 \end{aligned} \right.$$