

$$\textcircled{1} \quad 5x + 2y = 26 \quad (4, 3)$$

$$5(4) + 2(3) = 26$$

$$20 + 6 = 26$$

$$26 = 26 \quad \text{YES}$$

$$\textcircled{2} \quad 3x - 8 = 4(x + 1)$$

$$3x - 8 = 4x + 4$$

$$3x - \cancel{8} + \cancel{8} = 4x + 4 + 8$$

$$3x = 4x + 12$$

$$3x - 4x = 4x + 12 - 4x$$

$$-1x = 12$$

$$\frac{-1x}{-1} = \frac{12}{-1}$$

$$x = -12$$

$$\textcircled{3} \quad \frac{5x}{2} + 3 = \frac{1}{7}$$

$$\text{LCD} = 14$$

$$\frac{5x}{2} + \frac{3}{1} = \frac{1}{7}$$

$$\frac{5x}{2}(14) + \frac{3}{1}(14) = \frac{1}{7}(14)$$

$$5x(7) + 3(14) = 1(2)$$

$$35x + 42 = 2$$

$$35x + \cancel{42} - \cancel{42} = 2 - 42$$

$$35x = -40$$

$$\frac{35x}{35} = \frac{-40}{35}$$

$$x = -\frac{\cancel{5}(8)}{\cancel{5}(7)}$$

$$x = -\frac{8}{7}$$

Placement Pretest  
Math 0310  
Elementary  
ALGEBRA

011615

$$\textcircled{4} \quad x + 7.1x = 234.9$$

$$1.00x + 7.1x = 234.9$$

$$8.1x = 234.9$$

$$\frac{8.1x}{8.1} = \frac{234.9}{8.1}$$

$$x = 29$$

$$\textcircled{5} \quad 2(x+3) = (2x+6)$$

$$2x + 6 = 2x + 6$$

$$2x + 6 - 6 = 2x + 6 - 6$$

$$2x = 2x$$

$$2x - 2x = 2x - 2x$$

$$0 = 0$$

all real numbers or identity

$$\textcircled{6} \quad 14x + 9y = 10 \quad \text{Solve for } y$$

$$14x + 9y - 14x = 10 - 14x$$

$$9y = 10 - 14x$$

$$\frac{9y}{9} = \frac{10 - 14x}{9}$$

$$y = \frac{10 - 14x}{9}$$



- ⑦ The sum of a number and three is negative eleven.  
Find the number.

$$x + 3 = -11$$

$$x + 3 - 3 = -11 - 3$$

$$x = -14$$

3.

⑧  $1.4x - 3.8 > 0.7x - 1.07$

$$1.4x - \cancel{3.8} + \cancel{3.8} > 0.7x - 1.07 + 3.8$$

$$1.4x > 0.7x + 2.73$$

$$1.4x - 0.7x > 0.7x + 2.73 - 0.7x$$

$$0.7x > 2.73$$

$$\frac{0.7x}{0.7} > \frac{2.73}{0.7}$$

$$(3.9, +\infty)$$

$$x > 3.9$$



⑨  $6x - 2 < 7(x - 3)$

$$6x - 2 < 7x - 21$$

$$6x - \cancel{2} + \cancel{2} < 7x - 21 + 2$$

$$6x < 7x - 19$$

$$6x - 7x < 7x - 19 - 7x$$

$$-1x < -19$$

$$\frac{-1x}{-1} > \frac{-19}{-1}$$

Turn alligator

$$x > 19$$



$$(19, +\infty)$$

10. Graph  
 $y = -3x - 6$

x	y
0	-6
1	-9

$$y = -3(0) - 6$$

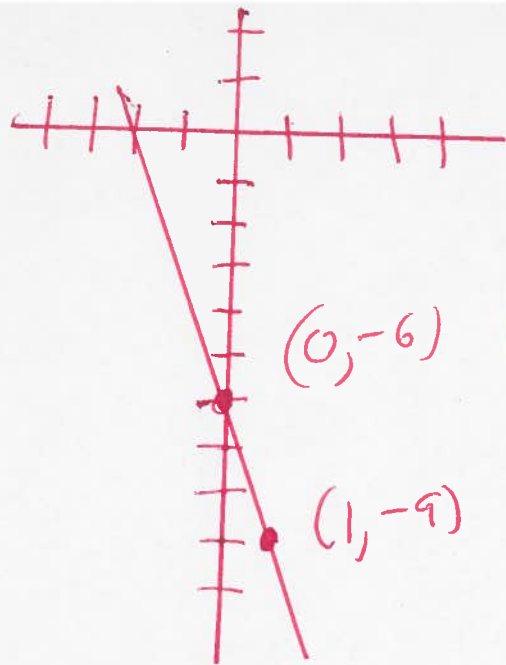
$$y = 0 - 6$$

$$y = -6$$

$$y = -3(1) - 6$$

$$y = -3 - 6$$

$$y = -9$$



4.

11. Graph  
 $-5x - 10y = 30$

$$-5x - 10y + 5x = 30 + 5x$$

$$-10y = 30 + 5x$$

$$\frac{-10y}{-10} = \frac{30}{-10} + \frac{5x}{-10}$$

$$y = -3 - \frac{5x}{10}$$

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

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

x	y
0	-3
2	-4

$$y = -\frac{1}{2}(0) - 3$$

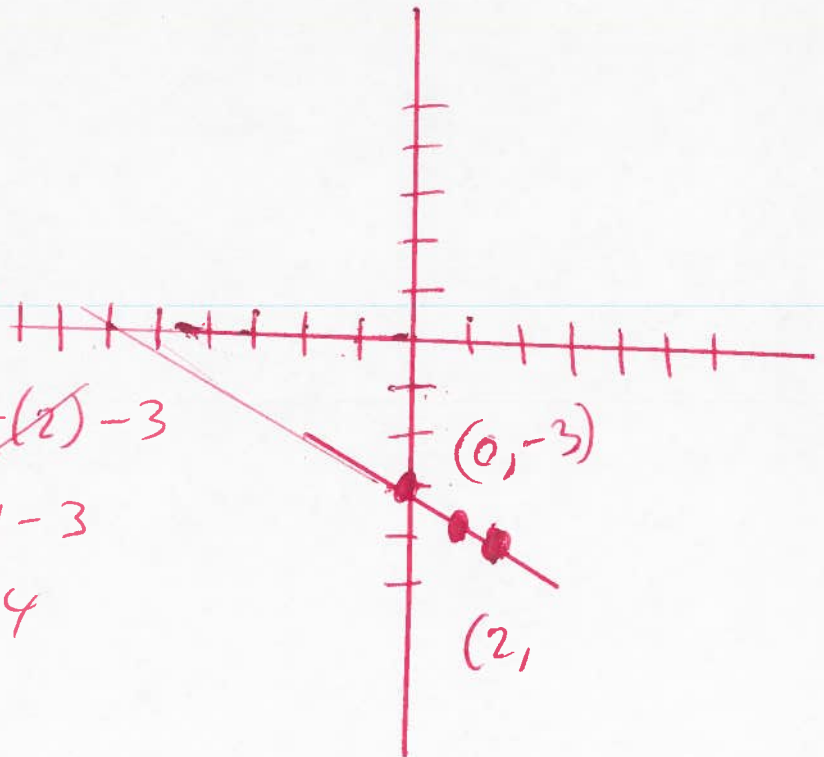
$$y = 0 - 3$$

$$y = -3$$

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

$$y = -1 - 3$$

$$= -4$$



(12) Find slope  $(1, -5)$   $(-9, 6)$   
 $x_1$   $y_1$   $x_2$   $y_2$

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

$$m = \frac{(-5) - (6)}{(1) - (-9)}$$

$$m = \frac{-5 - 6}{1 + 9}$$

$$m = \frac{-11}{10}$$



(13) Find the slope and the y-intercept

$$3x + y = 4$$

$$y = mx + b$$

slope = m

y-intercept

$$3x + y - 3x = 4 - 3x$$

$$y = 4 - 3x$$

$$y = -3x + 4$$

slope = m = -3

y-intercept = b = 4

(14) Find the equation of the line

with point  $(4, 3)$  and slope = -3

Point slope formula  $x_1$   $y_1$   $m$

$$y - y_1 = m(x - x_1)$$

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

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

$$y - 3 = -3x + 12$$

$$y - \cancel{3} + \cancel{3} = -3x + 12 + 3$$

$$y = -3x + 15$$

(15)  $L_1 \quad y = 7x + 5$

$L_2 \quad y = -\frac{1}{7}x + 3$

$m_1 = 7, \quad m_2 = -\frac{1}{7}$

$m_1 \cdot m_2 = (7)(-\frac{1}{7}) = (\frac{7}{1})(-\frac{1}{7}) = -\frac{7}{7} = -1$

Perpendicular

6

(16.)  $x + y = -6$   
 $y = 2x$

Solve for  $x$  and  $y$ .

$x + (2x) = -6$

$x + 2x = -6$

$1x + 2x = -6$

$3x = -6$

$\frac{3x}{3} = \frac{-6}{3}$

$x = -2$

Subst

$x + y = -6$

$(-2) + y = -6$

$-2 + y = -6$

$-2 + y + 2 = -6 + 2$

$y = -4$

$(x, y) = (-2, -4)$

(17.)  $(x - 4y = 17) \quad (-5)$  multiply

$(-3x - 5y = 51) \quad (4)$  multiply

$-5x + 20y = -85$

$-12x - 20y = 204$

$-17x = 119$

$\frac{-17x}{-17} = \frac{119}{-17}$

$x = -7$

Subst

$x - 4y = 17$

$(-7) - 4y = 17$

$-7 - 4y = 17$

$-7 - 4y + 7 = 17 + 7$

$-4y = 24$

$\frac{-4y}{-4} = \frac{24}{-4}$

$y = -6$

$(x, y) = (-7, -6)$

$$\begin{aligned} 18. \quad & (7x^2 + 20x + 5) - (5x^2 - 4x - 12) = \\ & 7x^2 + 20x + 5 - 5x^2 + 4x + 12 = \\ & 2x^2 + 24x + 17 = \end{aligned}$$



$$\begin{aligned} 19. \quad & (-8x^9 y^8 z)^2 = \\ & (-8)^1 x^9 y^8 z^1 = \\ & (-8)^2 x^{18} y^{16} z^2 = \\ & (-8)(-8) x^{18} y^{16} z^2 = \\ & 64x^{18} y^{16} z^2 = \end{aligned}$$

$$\begin{aligned} 20. \quad & (7x^6 y)(8x^2 y^4) = \\ & (7x^6 y^1)(8x^2 y^4) = \\ & 56x^{6+2} y^{1+4} = \\ & 56x^8 y^5 = \end{aligned}$$

$$\begin{aligned} 21. \quad & (7p+9)(7p-9) = \\ & 49p^2 - 63p + 63p - 81 = \\ & 49p^2 - 81 = \end{aligned}$$

$$\begin{aligned} 22. \quad & (6x-11y)^2 = \\ & (6x-11y)(6x-11y) = \\ & 36x^2 - 66xy - 66xy + 121y^2 = \\ & 36x^2 - 132xy + 121y^2 = \end{aligned}$$

$$(23) (2y+11)(5y^2-2y-9) =$$

$$10y^3 - 4y^2 - 18y + 55y^2 - 22y - 99 =$$

$$10y^3 + 51y^2 - 40y - 99 =$$



24.

$$\frac{56m^{20}n^{14}}{7m^{19}n^{10}} =$$

$$\cancel{7}(\cancel{8})m^{20-19}n^{14-10} =$$

$$8m^1n^4 =$$

$$8mn^4 =$$

25.

$$\left(\frac{6t^3}{3s^4}\right)^2 =$$

$$\left(\frac{2t^3}{s^4}\right)^2 =$$

$$\frac{2^2 t^6}{s^8} =$$

$$\frac{(2)(2)t^6}{s^8} =$$

$$\frac{4t^6}{s^8} =$$



$$26) 3^{-4} =$$

$$\frac{1}{3^4} =$$

$$\frac{1}{3 \cdot 3 \cdot 3 \cdot 3} =$$

$$\frac{1}{81} =$$



$$27) \frac{3m^2 + 17m - 56}{m+8}$$

Long division

$$\begin{array}{r} 3m-7 \\ m+8 \overline{) 3m^2 + 17m - 56} \\ \underline{-(3m^2 + 24m)} \phantom{-56} \\ -7m - 56 \\ \underline{-(-7m - 56)} \\ 0 - 0 \end{array}$$

$$\frac{3m^2 + 17m - 56}{m+8}$$

Synthetic division

$$\begin{array}{r|rrrr} -8 & 3 & 17 & -56 & \\ & & -24 & 56 & \\ \hline & 3 & -7 & 0 & \end{array}$$

$$3m-7$$

(28.)

Factor  $x^2 + x - 20 =$

20.1

10.2

4.5

$$(x - 4)(x + 5) =$$

10.

(29.)

Factor

$$a^2 - b^2 = (a + b)(a - b)$$

$$81x^2 - 16y^2 =$$

$$(9x)^2 - (4y)^2 =$$

$$(9x + 4y)(9x - 4y) =$$

(30.)

$$f(x) = x^2 + 3x - 4$$

$$f(3) = (3)^2 + 3(3) - 4$$

$$f(3) = (3)(3) + 3(3) - 4$$

$$f(3) = 9 + 9 - 4$$

$$f(3) = 18 - 4$$

$$f(3) = 14$$