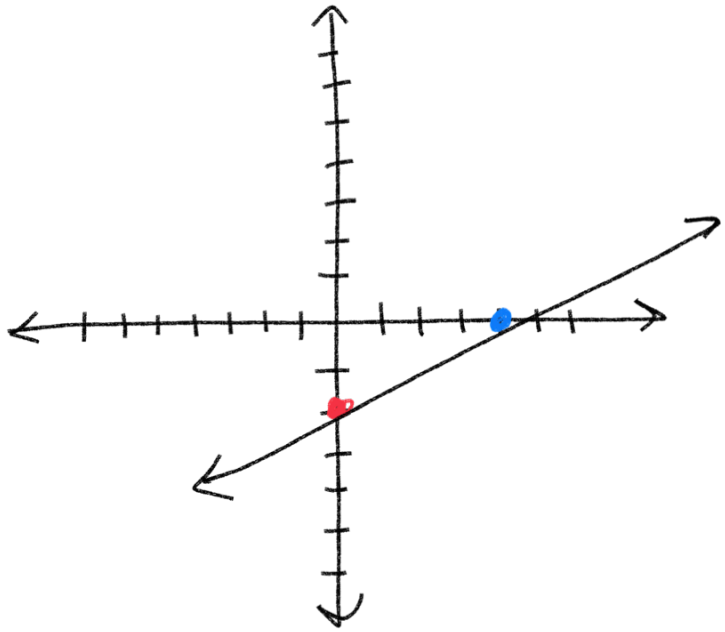
T-G Geometry Week 16 1/9 Graph intercepts

Graph. standard form

$3x - 6y = 12$



$3x - 6y = 12$ y-int

$x = 0$ -6 -6 $(0, -2)$

$y = -2$

$\frac{3x}{3} - \frac{6y}{3} = \frac{12}{3}$ x-int $(4, 0)$

$y = 0$ $x = 4$

Find the linear equation for a line parallel to $4x - 12y = 24$ that goes through $(6, -3)$ x y

Parallel lines → same slope.

slope

$y = mx + b$

1.) Find the given slope

Given slope: $\frac{1}{3} = m$

$4x - 12y = 24$

$-4x \quad -4x$

$\frac{-12y}{-12} = \frac{-4x}{-12} + \frac{24}{-12}$

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

2.) Plug into $y = mx + b$

$-3 = (\frac{1}{3})(6) + b$

$\frac{1}{3}(\frac{6}{1}) = \frac{6}{3} = 2$

$-3 = 2 + b$

$-2 \quad -2$

$-5 = b$

$y = mx + b$

$y = \frac{1}{3}x - 5$

Determine the linear equation for a line perpendicular to $y = \frac{-3}{4}x + 8$ that goes through $(6, -9)$

perpendicular lines have opposite inverse slopes

Find given slope: $-\frac{3}{4}$

Find perpendicular slope: $-\frac{3}{4} \rightarrow$ opposite inverse $\rightarrow \frac{4}{3} = m$

$y = mx + b$

$-9 = \left(\frac{4}{3}\right)(6) + b$

$\frac{4}{3}(6) = \frac{4}{3}\left(\frac{6}{1}\right) = \frac{8}{1} = 8$

$-9 = 8 + b$

$-8 \quad -8$

$-17 = b$

$y = mx + b$

$y = \frac{4}{3}x - 17$

Geometry Chapter 3 Pre-Test

1.) (2 pts each, 10 pts total) Use the following illustration to define the relationship between each of the angles listed. Please include both the type of angles and whether they are congruent, supplemental, or ~~complementary~~.

≅ =180° =90°

1.) vertical angles

a) ∠1 & ∠8 corresponding congruent

b) ∠5 & ∠7

2.) linear pairs

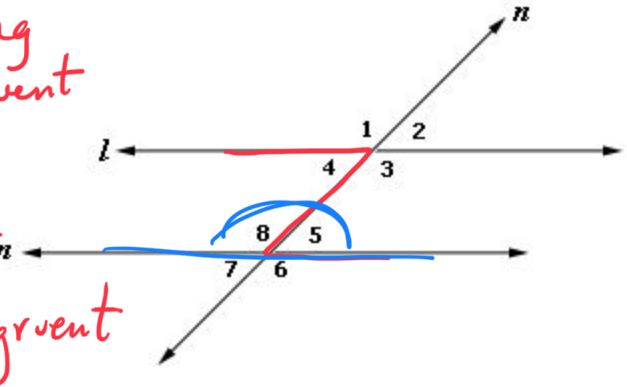
c) ∠4 & ∠5 alt. interior angles congruent

3.) Correspond

d) ∠4 & ∠8

4.) alt interior

e) ∠5 & ∠8 linear pair supplemental



2.) (10 pts) Find the value of x and y.

5.) same-side interior

same-side interior supplemental

$4y+8+3y-14=180$

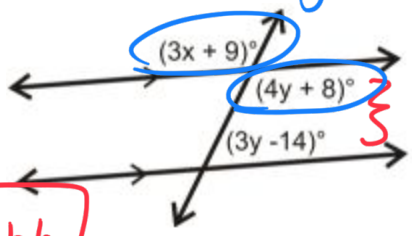
$7y-6=180$

$+6 \quad +6$

$\frac{7y}{7}=\frac{186}{7}$

$y=26.6$

vertical angles



$3x+9=4y+8$

$3x+9=4(26.6)+8$

3.) (2.5 pts each, 10 pts total) Find the angle measure of each of the indicated angles.

a) ∠1

b) ∠2

c) ∠3

d) ∠4

$3x+9=114.4$

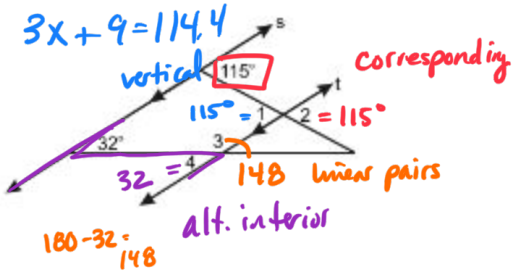
$-9 \quad -9$

$\frac{3x}{3}=\frac{105.4}{3}$

$x=35.1$

$3x+9=106.4+8$

$3x+9=114.4$



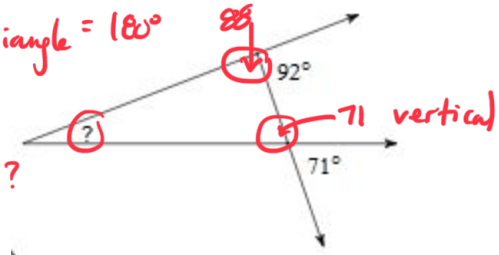
△ = 180°

4.) (5 pts each, 10 pts total) Use the properties of triangles to find the missing angles and/or variables.

a) Find "?"

interior angle sum of triangle = 180°

180 - 92 = 88



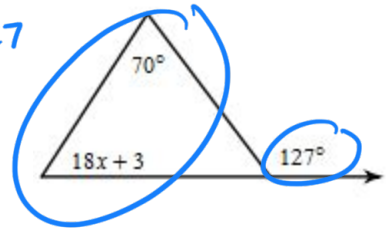
180° = 88 + 71 + ?

180 = 159 + ?

-159 -159

21 = ?

b) Find x



18x + 3 + 70 = 127

18x + 73 = 127

-73 -73

$\frac{18x}{18} = \frac{54}{18}$

x = 3

5.) (5 pts each, 15 pts total) Answer each of the following using your understanding of polygons.

180 (n - 2)

a) What is the total interior angle measure of a 15-sided regular polygon? What is the measure of each angle within the 15-sided regular polygon?

180(15 - 2)

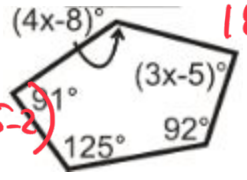
180(13) = 2340

b) Find x.

180(5 - 2)

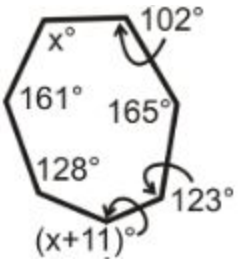
180(3)

540



4x - 8 + 3x - 5 + 92 + 125 + 91 = 180(5-2)

c) Find x.



6.) (5 pts each, 10 pts total) Find the slope of each of the following sets of ordered pairs.

a) (5, 3) (7, -5)

$\frac{y_2-y_1}{x_2-x_1} = \frac{-5-3}{7-5} = \frac{-8}{2} = \boxed{-4}$

b) (8, -2) (2, 10)

$\frac{3-(-5)}{5-7} = \frac{3+5}{-2} = \frac{8}{-2} = \boxed{-4}$

7.) (5 pts) Write an equation for the line with the given slope that contains the given point. Graph the line.

slope -4, (-1, 5)

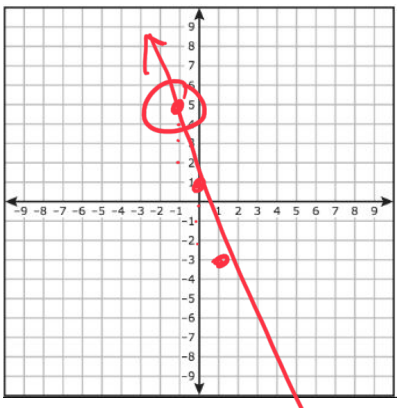
$y = mx+b$

$5 = (-4)(-1)+b$

$5 = 4+b$

$-4 \quad -4$

$\boxed{1 = b}$



slope = -4

$\frac{\text{down } 4}{1 \text{ right}}$

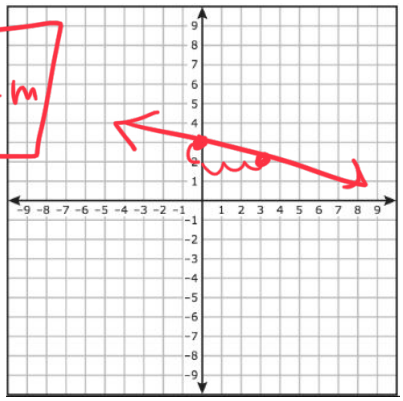
$y = mx+b$

$\boxed{y = -4x+1}$

8.) (5 pts each, 10 pts total) Write the equation for the line containing the given points in both point-slope and slope-intercept forms. Graph each line.

a) (-3,4) (6,1)

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



2.) Plug into $y = mx + b$

$1 = (-\frac{1}{3})(6) + b$

$1 = -2 + b$

$+2 \quad +2$

$b = 3$

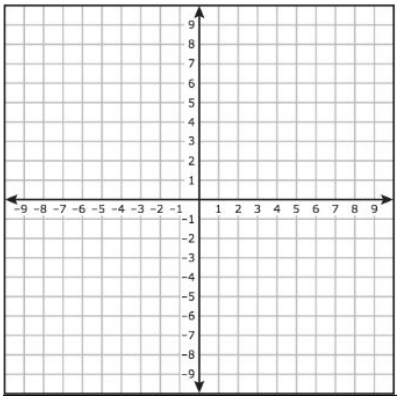
$y = -\frac{1}{3}x + 3$

b) (7,-2) (-1, 2)

1.) Plot y-int

2.) Use slope $\frac{-1}{3} = \frac{\text{down 1}}{\text{3 right}}$

$\frac{\text{rise}}{\text{run}}$



9.) (5 pts each, 10 pts total) Graph each line.

a) $2x - 4y = 12$

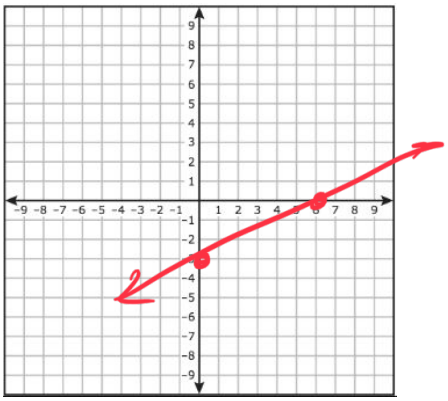
$\frac{2x}{2} - \frac{4y}{-4} = \frac{12}{-4}$

$x = 0$ $(0,-3)$

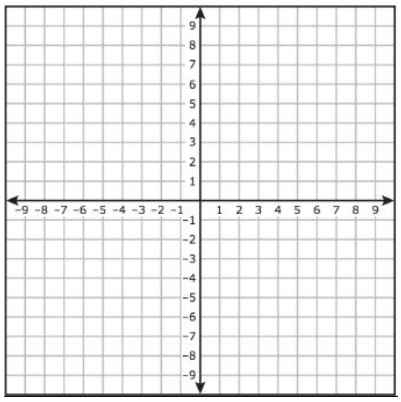
$y = -3$

$\frac{2x}{2} - \frac{4y}{2} = \frac{12}{2}$

$x = 6$ $y = 0$ $(6,0)$



b) $y = \frac{-3}{4}x - 2$ $y = mx + b$



10.) (5pts each, 10 pts total) Write the specified equation.

a) Write an equation for the line perpendicular to the line $y = \frac{3}{2}x + 5$ that contains the point (-6,3).

b) Write an equation for the line parallel to the line $12x + 3y = 6$ that contains the point (1,-2).