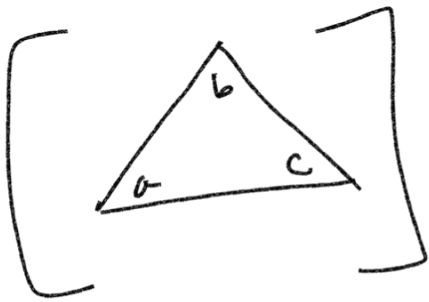


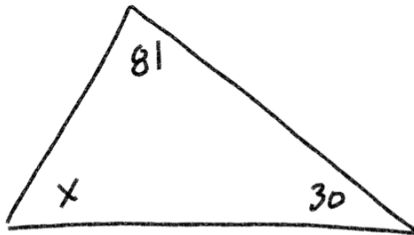
TH-6 Geometry Week 14

Triangle Angle Sum Theorem



$$a + b + c = 180^\circ$$

1.)

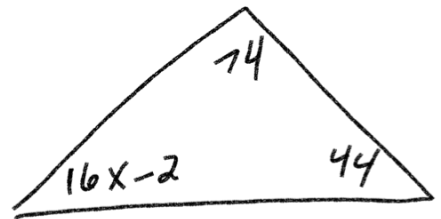


$$x + 81 + 30 = 180$$

$$x + 111 = 180$$

$$111 \quad -111$$

$$\boxed{x = 69}$$



$$74 + 44 = 118$$

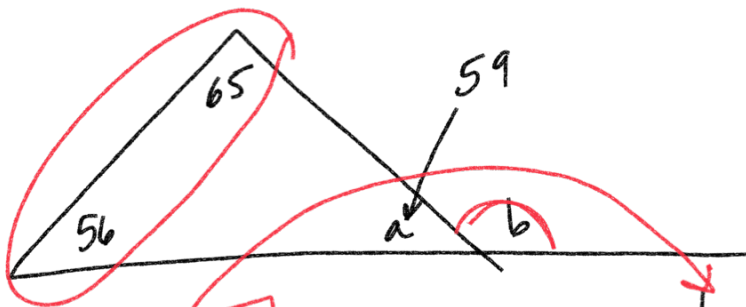
$$118 - 2 + 16x = 180$$

$$116 + 16x = 180$$

$$-116 \quad -116$$

$$\frac{16x}{16} = \frac{64}{16}$$

$$\boxed{x = 4}$$

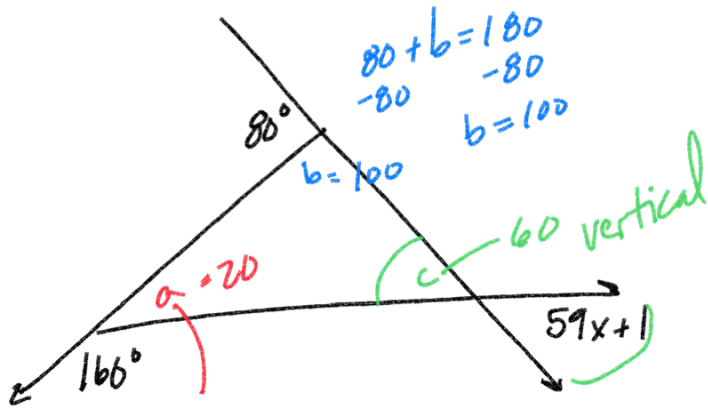


b =

$$\begin{array}{r} 56 + 65 + a = 180 \\ 121 + a = 180 \\ -121 \quad -121 \\ a = 59 \end{array}$$

$$\begin{array}{r} a + b = 180 \\ 59 + b = 180 \\ -59 \quad -59 \\ \boxed{b = 121} \end{array}$$

3.)

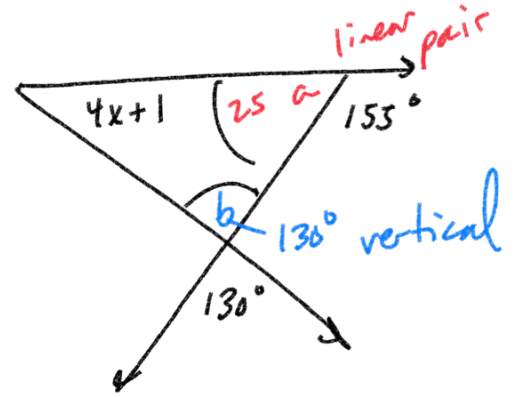


$$\begin{array}{r} 160 + a = 180 \\ -160 \\ \hline a = 20 \end{array}$$

$$\begin{array}{r} 20 + 100 + c = 180 \\ 120 + c = 180 \\ -120 \\ \hline c = 60 \end{array}$$

$$\begin{array}{r} 60 = 59x + 1 \\ -1 \quad -1 \\ \hline 59 = 59x \\ \frac{59}{59} \quad \frac{59}{59} \\ \hline 1 = x \end{array}$$

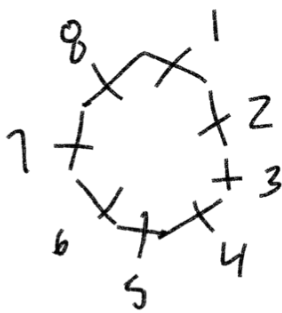
4.)



$$\begin{array}{r} 130 + 25 + 4x + 1 = 180 \\ 156 + 4x = 180 \\ -156 \\ \hline 4x = 24 \\ \frac{4x}{4} = \frac{24}{4} \\ \hline x = 6 \end{array}$$

Polygon Angle Sum Theorem

Sum of the interior angles = $(n-2)(180)$

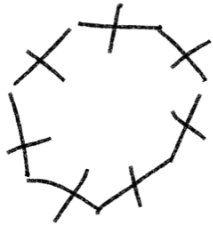


$n = 8$

$$(8-2)(180)$$

$$(6)(180) = 1080^\circ$$

5.)



$$n=7$$

$$(7-2)(180)$$

$$(5)(180)$$

$$\boxed{900}$$

b.) 52-gon

$$n=52$$

$$(52-2)(180)$$

$$(50)(180) = \boxed{9000}$$

Regular Polygon - all sides equal

Regular Pentagon → Value of an individual interior angle

$$(5-2)(180)$$

$$\frac{(3)(180)}{5} =$$

5

$$\frac{540}{5} = \boxed{108}$$

3-5 Lines in the Coordinate Plane

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}$$

$$\begin{array}{l} (x_1, y_1) \\ (x_2, y_2) \end{array}$$

$(2, 3)$ $(4, 9)$

Slope-Intercept form

$$y = mx + b$$

↑ slope y-intercept

$$\text{slope} = \frac{9 - 3}{4 - 2} = \frac{6}{2} = 3$$

Point-Slope form

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

↑ slope

$$\text{slope} = \frac{3}{4} \quad (5, -2)$$

$$y - (-2) = \frac{3}{4}(x - 5)$$

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

$$y + 2 = \frac{3}{4}x - \frac{15}{4}$$

-2

$$y = \frac{3}{4}x - \frac{23}{4}$$

$$\underbrace{(-2, 8)} \quad \underbrace{(4, -4)}$$

slope-intercept form

- 1) Find slope
- 2) plug into point-slope $y - y_1 = m(x - x_1)$
- 3) change in slope-intercept $y = mx + b$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 8}{4 - (-2)} = \frac{-12}{6} = \boxed{-2} \quad m = -2$$

Point-slope

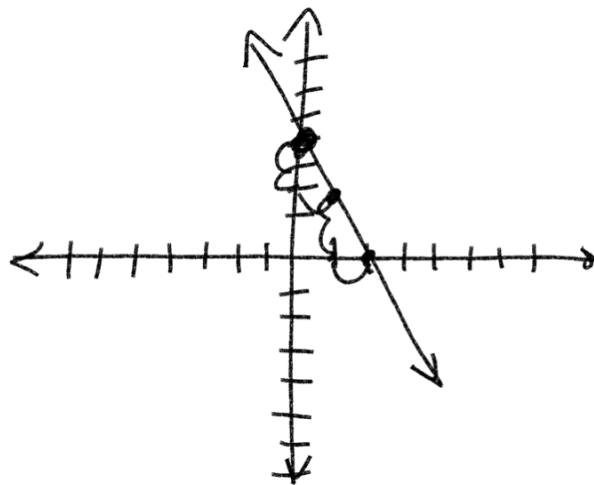
$$y - 8 = -2(x - (-2))$$
$$y - 8 = -2(x + 2)$$

Slope-intercept

$$y - 8 = -2x - 4$$
$$\begin{array}{r} +8 \\ \hline y = -2x + 4 \end{array}$$

$$y = -2x + 4$$

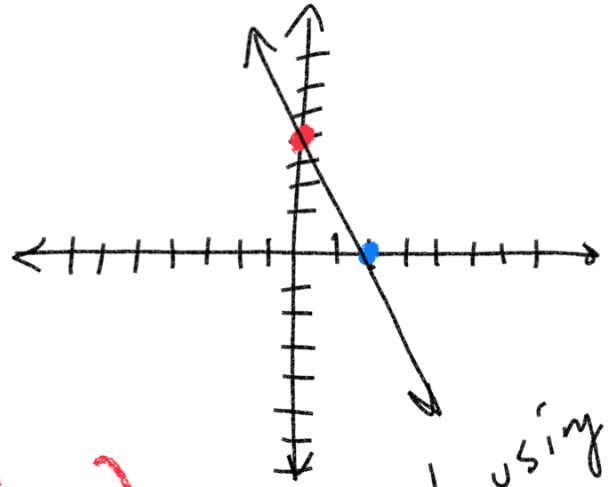
slope \nearrow (4) \nearrow y-int



slope = -2
 $\frac{\text{down } 2}{1 \text{ right}}$

Standard Form

$$4x + 2y = 8$$



$x=0$ ~~$4x$~~ + $2y = 8$
 $\frac{2y}{2} = \frac{8}{2}$ $y=4$ $(0,4)$

Graph using intercepts

$y=0$ $4x +$ ~~$2y$~~ $= 8$
 $\frac{4x}{4} = \frac{8}{4}$ $x=2$ $(2,0)$

HW/Quiz 13
due within
a week

HW
Ch 3.5 evens
* Supplemental WS (this week)
On-line HW 14
Quiz 14 (this week)
due on Jan 14th