

W-G Geometry Week 14 1/4

Find the sum of the interior angles of

a) dodecagon (12-gon)

$$\sum 180(n-2) \quad n=12$$

$$180(12-2)$$

$$180(10) = \boxed{1800^\circ}$$

b) hexacontagon (60-gon)

$$180(n-2)$$

$$180(60-2)$$

$$180(58) = \boxed{10,440^\circ}$$

Find the value of x



$$180(n-2) \quad n=5$$

$$180(5-2)$$

$$180(3) = 540$$

$$4x + 120 + 5x + 6x + 145 = 540$$

$$15x + 265 = 540$$

$$-265 \quad -265$$

$$\frac{15x}{15} = \frac{275}{15}$$

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$$\boxed{x = 18.3}$$

not drawn
to scale

Find the individual interior angle measure of a regular 18-gon.

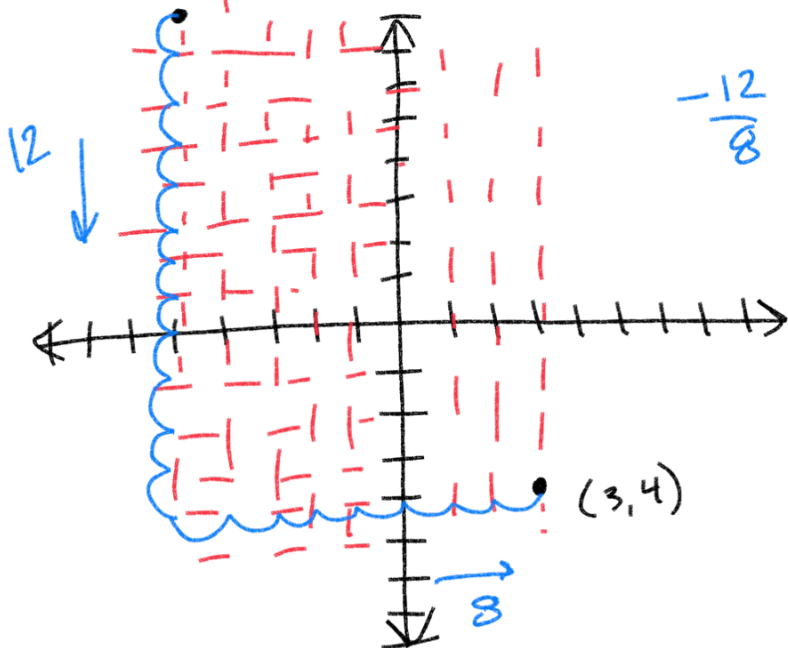
all angles equal $\frac{180(n-2)}{n}$

$$\frac{180(18-2)}{18} = \frac{180(16)}{18} = \frac{2880}{18} = \boxed{160^\circ}$$

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope between $(3, -4)$ and $(-5, 8)$
 (x_2, y_2) (x_1, y_1)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 8}{3 - (-5)} = \frac{-12 \div 4}{8 \div 4} = \frac{-3}{2} \rightarrow \begin{array}{l} \text{down } 3 \\ \text{2 right} \end{array}$$



$$-\frac{12}{8} = \frac{-3}{2}$$

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

$$\frac{8 - (-4)}{-5 - 3} = \frac{12}{-8} = \boxed{\frac{-3}{2}}$$

Find the slope
 (x_2, y_2) and (x_1, y_1)
 $(6, 4)$ and $(8, -10)$

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

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - (-10)}{6 - 8} = \frac{4 + 10}{6 - 8} = \frac{14}{-2} = -7$$

$$\frac{-7}{1} = \frac{7 \text{ down}}{1 \text{ right}}$$

Slope-Intercept Form

$$\text{slope} = \frac{4}{3} \quad m = \frac{4}{3}$$

$$y\text{-int} = 2 \quad b = 2$$

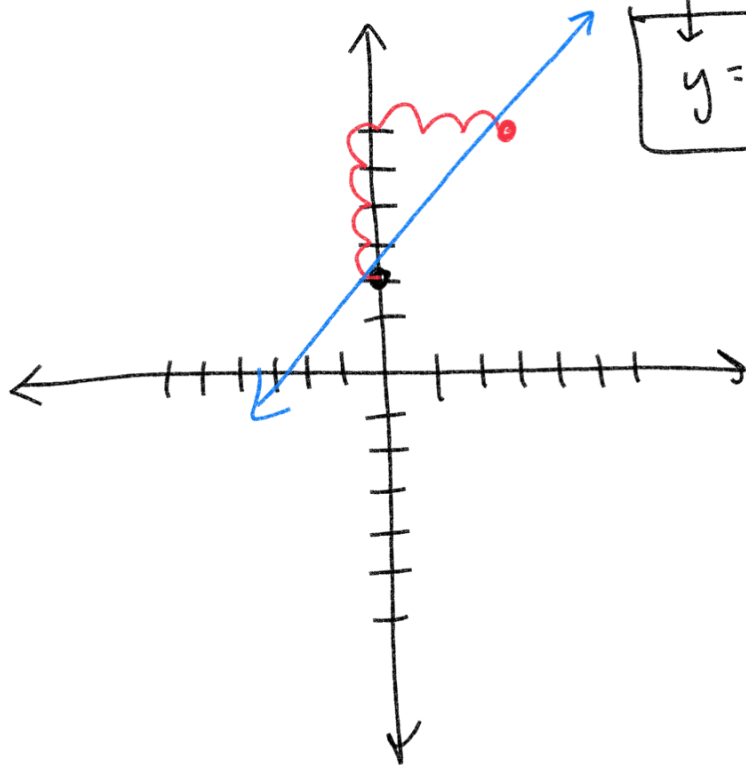
$$y = mx + b$$

slope

y-intercept

(x, y)

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



Graph

1.) Plot y-int

2.) Use slope

$$\frac{4}{3} \rightarrow \frac{\text{up } 4}{3 \text{ right}}$$

Find the linear equation for a line with slope = $-\frac{7}{2}$ and y-int = 6 then graph.

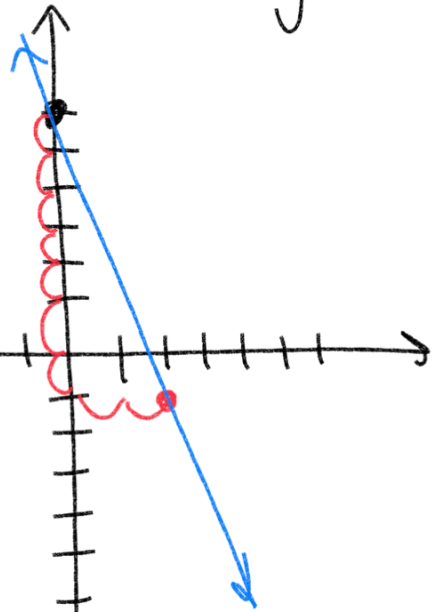
slope-intercept

$$y = mx + b$$

$$y = -\frac{7}{2}x + 6$$

slope

down 7
2 right



Find equation of line with slope of 2 = m that goes through the point (3, -4)

slope-intercept

$$y = mx + b$$

$$-4 = (2)(3) + b$$

$$-4 = 6 + b$$

$$-6 \quad -6$$

$$-10 = b$$

$$y = mx + b$$

$$y = 2x - 10$$

solve for b

Point-Slope Form

$$(x_2 - x_1)m = \left(\frac{y_2 - y_1}{x_2 - x_1} \right) (x_2 - x_1)$$

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

$$y - (-4) = 2(x - 3)$$

$$y + 4 = 2x - 6$$

$$y = 2x - 10$$

Find the equation for the line with slope = $-\frac{1}{4} = m$ that goes through the point $(4, 8)$

$$y = mx + b$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$8 = \left(-\frac{1}{4}\right)(4) + b$$

$$8 = -1 + b$$

$$+1 \quad +1$$

$$\boxed{9 = b}$$

$$\boxed{y = -\frac{1}{4}x + 9}$$

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

$$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$

$$y - 8 = -\frac{1}{4}(x - 4)$$

$$y - 8 = -\frac{1}{4}x + 1$$

$$+8 \quad +8$$

$$\boxed{y = -\frac{1}{4}x + 9}$$

Find the equation for the line between $(5, -3)$ and $(0, -2)$ ← gave y-int!!

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - (-2)}{5 - 0} = \frac{-3 + 2}{5 - 0} = \boxed{\frac{-1}{5}} = m$$

$$y = mx + b$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$-2 = \left(-\frac{1}{5}\right)(0) + b$$

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

$$y = mx + b$$

$$\downarrow$$

$$\boxed{y = -\frac{1}{5}x - 2}$$

