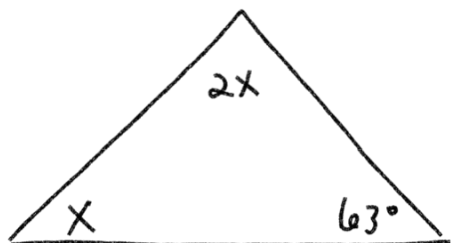


W-G Geometry Week 13 12/14

sum of the interior angles
in a triangle = 180°

1.)



$$2x + x + 63 = 180^\circ$$

$$\begin{array}{r} 3x + 63 = 180^\circ \\ -63 \quad -63 \\ \hline \end{array}$$

$$\frac{3x}{3} = \frac{117}{3}$$

$$\boxed{x = 39}$$

$$\boxed{6x + 12} + a = 180^\circ$$

$$\boxed{4x + 38} + a = 180^\circ$$

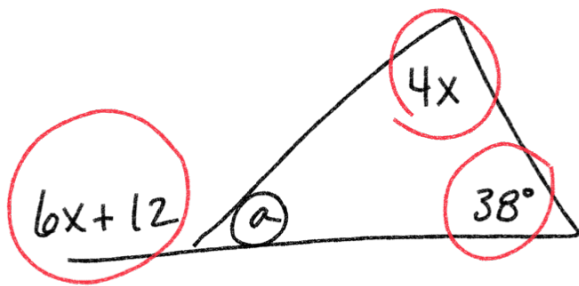
$$\begin{array}{r} 4x + 38 = 6x + 12 \\ -6x \quad -6x \\ \hline \end{array}$$

$$\begin{array}{r} -2x + 38 = 12 \\ -38 \quad -38 \\ \hline \end{array}$$

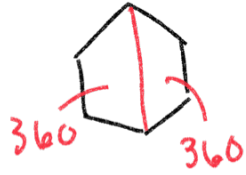
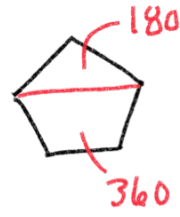
$$\begin{array}{r} -2x = -26 \\ \hline -2 \quad -2 \\ \hline \end{array}$$

$$\boxed{x = 13}$$

2.)



<u>Shape</u>	<u>Number of Sides</u>	<u>Sum of Interior Angles</u>
Triangle	3 $\rightarrow +1$	180°
Quadrilateral	4 $\rightarrow +1$	360°
Pentagon	5 $\rightarrow +1$	540°
Hexagon	6 $\rightarrow +1$	720°



Sum of the interior angles for any polygon:

$$180(n-2) \quad n = \# \text{ of sides}$$



octagon
 $n=8$

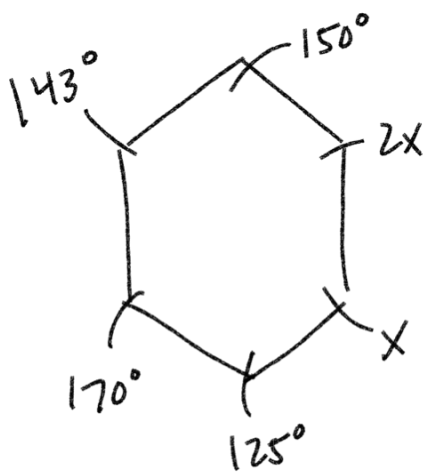
$$180(8-2)$$

$$180(6) = \boxed{1080^\circ}$$

90-sided polygon
90-gon

$$180(90-2)$$

$$180(88) = \boxed{15,840^\circ}$$



Not drawn
to scale

Solve for x.

$$n = 6$$

$$180(6-2)$$

$$180(4) = 720$$

$$2x + x + 125 + 170 + 143 + 150 = 720$$

$$3x + 588 = 720$$

$$-588 \quad -588$$

$$\frac{3x}{3} = \frac{132}{3}$$

$$x = 44$$

"Regular" Polygon - all sides are equal
all angles are equal

Find the individual interior angle
measure of a regular decagon

$$n = 10$$

$$180(10-2)$$

$$180(8) = 1440$$

$$\frac{1440}{10} = 144$$

$$\frac{180(n-2)}{n}$$

Find the individual interior angle
measure of a regular 42-gon

$$\frac{180(42-2)}{42}$$

$$\frac{180(40)}{42} = \frac{7200}{42} = 171.4^\circ$$

$$10 \rightarrow 144$$

$$42 \rightarrow 171.4$$

∞ -gon



$$\frac{(n-2)180}{n}$$

$$\frac{(\infty-2)180}{\infty}$$

$$\frac{(\infty)180}{\infty} = \boxed{180^\circ}$$

Find the slope between

$(4, 8)$ and $(2, -6)$

x_1, y_1

x_2, y_2
delta

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

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 8}{2 - 4} = \frac{-14}{-2} = \frac{7}{1} = \boxed{7} \quad \begin{array}{l} 7 \text{ up} \\ 1 \text{ over} \\ \text{right} \end{array}$$

$$\frac{8 - (-6)}{4 - 2} = \frac{8 + 6}{4 - 2} = \frac{14}{2} = \boxed{7}$$

Find the slope between $(8, 12)$ and $(2, -6)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 12}{2 - 8} = \frac{-18}{-6} = \boxed{3}$$

