

Interior and Exterior Angles of a Polygon

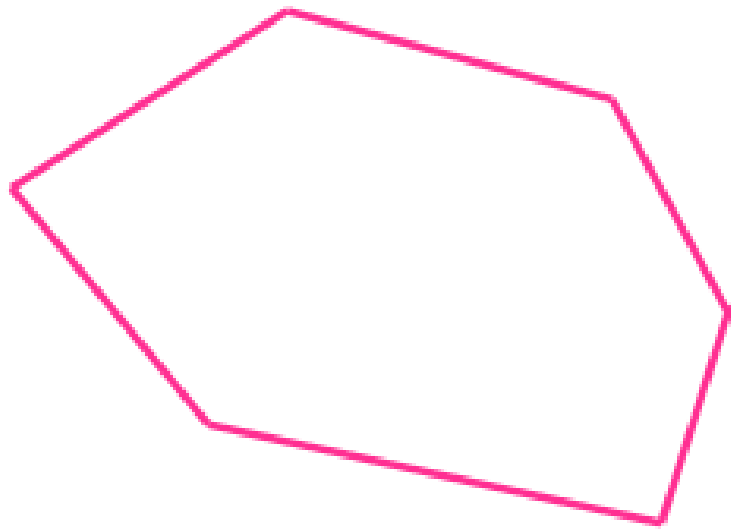
Three Formulas n = number of sides

Sum of the Interior Angles of a Polygon: $180 (n - 2)$

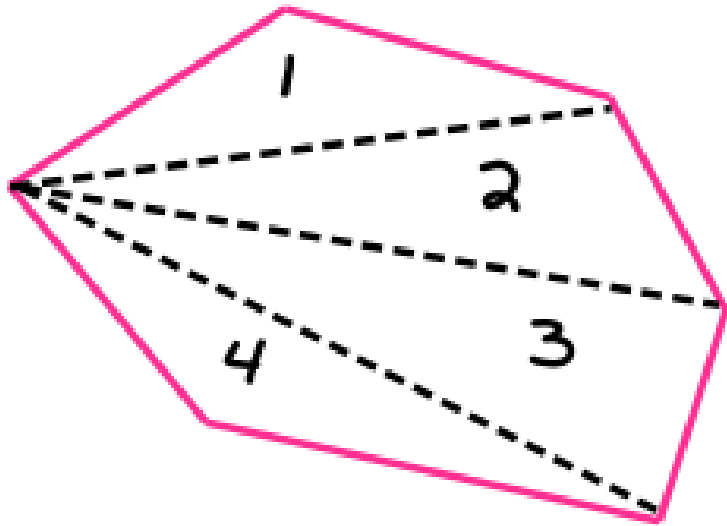
Measure of an Interior Angle of a Regular Polygon: $\frac{180 (n - 2)}{n}$

Sum of the Exterior Angles of a Polygon: Always equals 360°

Find the sum of the interior angles of the hexagon.



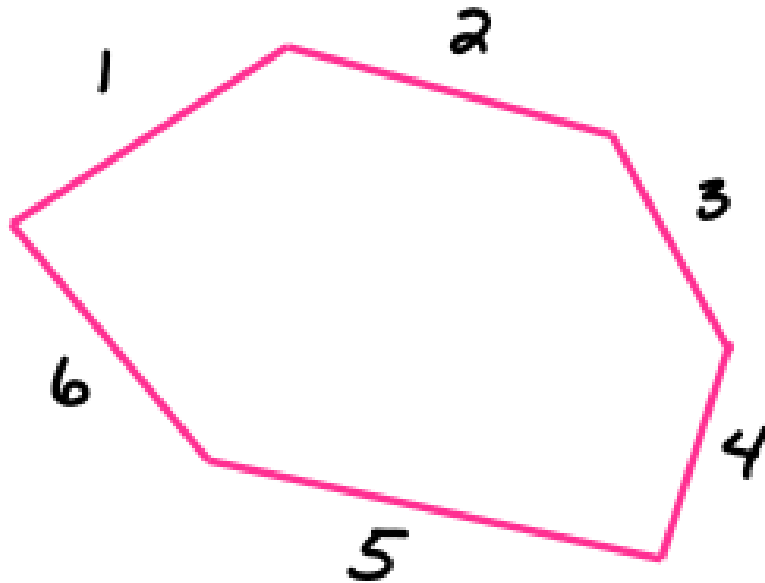
Find the sum of the interior angles of the hexagon.



Breaking apart shape into triangles is how the formula was created.

$$4 \text{ Triangles} \quad 4 \times 180 = 720^\circ$$

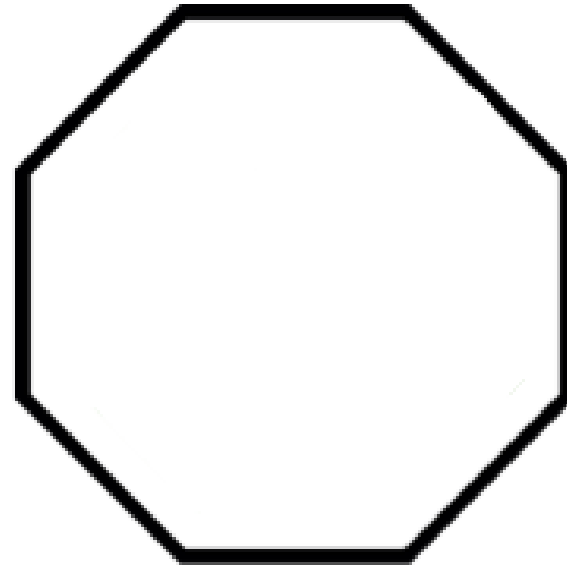
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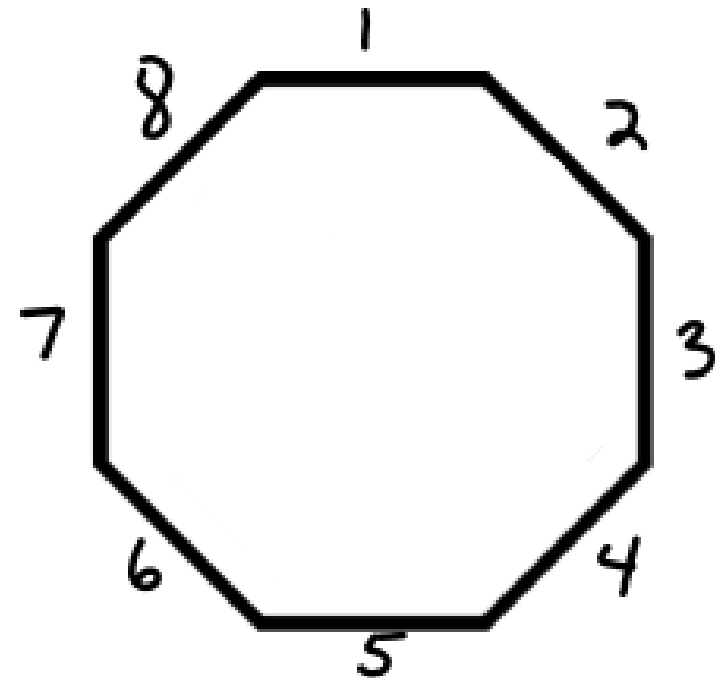
Sum of the Interior Angles of a Polygon: $180(n - 2)$

$$\begin{aligned} \text{Sum} &= 180(6 - 2) \\ &= 180(4) \\ &= 720^\circ \end{aligned}$$

Find the measure of an interior angle.
Assume a regular polygon.



Find the measure of an interior angle.
Assume a regular polygon.

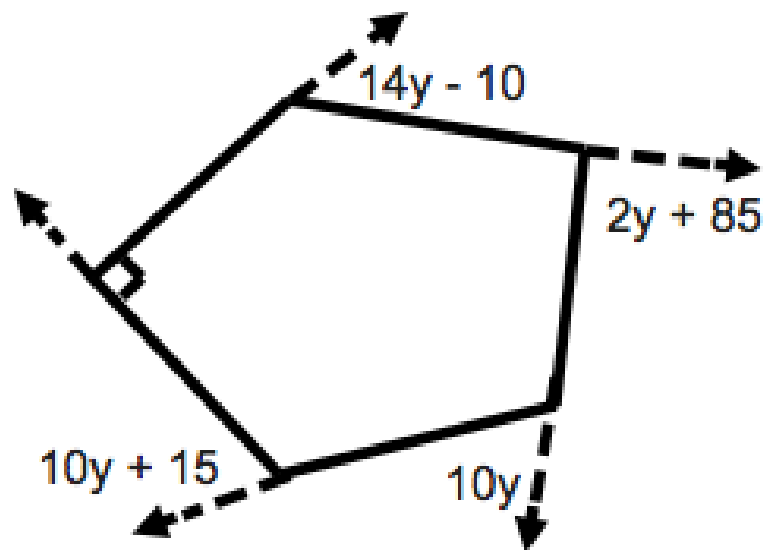


Measure of an Interior Angle of a Regular Polygon: $\frac{180(n-2)}{n}$

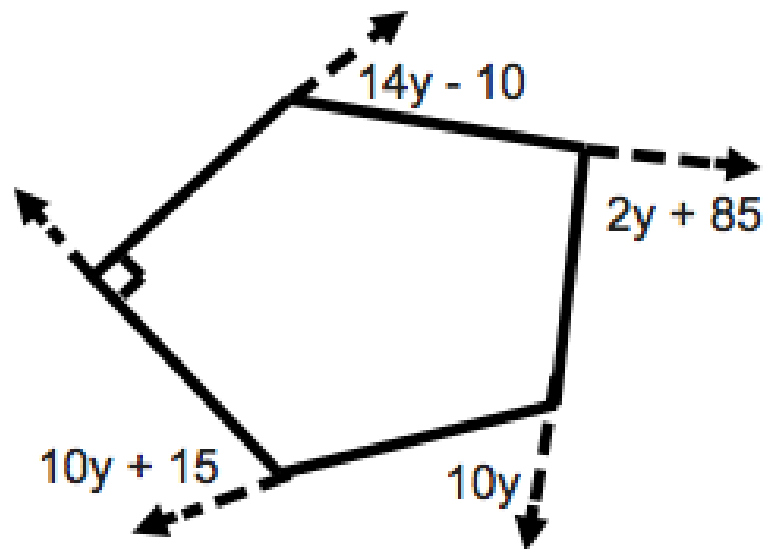
$$\frac{180(8-2)}{8} = 135^{\circ}$$

Each angle is 135°

Find the value of y .



Find the value of y .



Sum of the Exterior Angles of a Polygon:
Always equals 360°

$$10y + 15 + 10y + 2y + 85 + 14y - 10 + 90 = 360$$

$$36y + 180 = 360$$

$$36y = 180$$

$$y = 5$$