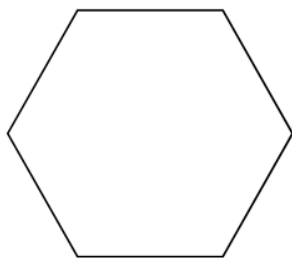# Symmetries of Regular Polygons

I can identify the rotation and reflection symmetries for regular polygons.

Vocabulary

- <u>Line of symmetry</u> – a line that reflects a figure onto itself.

- <u>Rotational symmetry</u> – a figure that can be carried onto itself by a rotation less than or equal to 180°

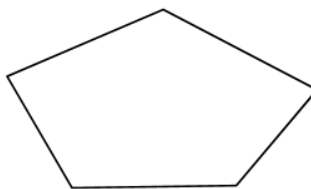- <u>Diagonal of a polygon</u> – any line segment that connects non-consecutive vertices of the polygon.

Example 1 – Does each figure have rotational symmetry? If so, find the angle of rotation.
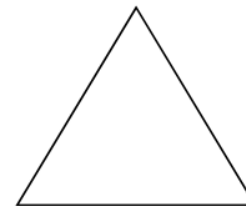
A)   B)   C)

yes $\dfrac{360}{6}$

$60°$

No

yes $\dfrac{360}{3} = 120°$

2 – What are the angles of rotation for a regular 18-gon?
How many lines of symmetry will it have?

$$\frac{360}{18} = \boxed{20°}$$

18 lines of sym.

3 – How many sides does a regular polygon have if its
angle of rotation is equal to 30°? Explain.

$$\frac{360°}{30°} = \boxed{18 \text{ sides}}$$