

## Angles inside polygons

### Literacy

Write a definition for each of the following terms.

Interior angle

Polygon

Exterior angle

Regular Polygon

### Research

Explain why an engineer or architect would need to be able to find angles inside a polygon.



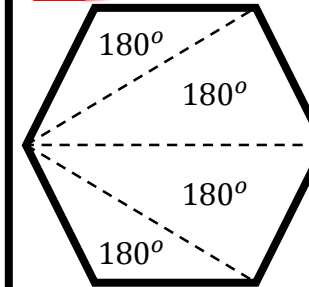
### Memory

Remember, to find the sum of the interior angles of a polygon split your shape into triangles.

(No. Triangles = No. Sides – 2)

Sum of interior angles of a hexagon.

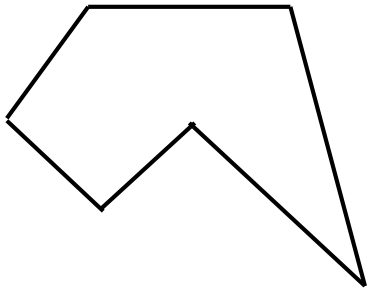
$$4 \times 180^\circ = 720^\circ$$



Size of each interior angle of a regular hexagon

$$720^\circ \div 6 = 120^\circ$$

1)



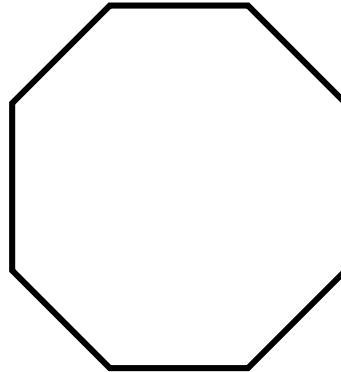
a) Identify the name of the shape.

b) What is the sum of the interior angles?

c) How do you know this shape is not a regular polygon?

### Skill

2)



a) Identify the name of the shape.

b) What is the sum of the interior angles?

c) This is a regular polygon. Calculate the size of the interior angles.

d) Work out the size of the external angle.

### Stretch

How many sides does a regular polygon have if it's exterior angles are:

a)  $45^\circ$

b)  $30^\circ$

How many sides does a regular polygon have if it's interior angles are:

a)  $156^\circ$

b)  $162^\circ$