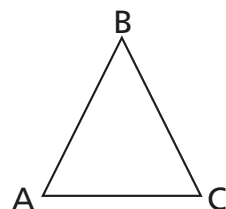


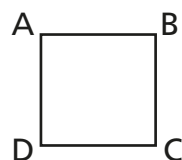
Calculate missing interior angles in regular polygons

- 1 ABC is an equilateral triangle.



- a) What is the sum of the interior angles of the triangle?
- b) What is the size of each interior angle?
- c) What calculation did you do to work out the size of each interior angle?

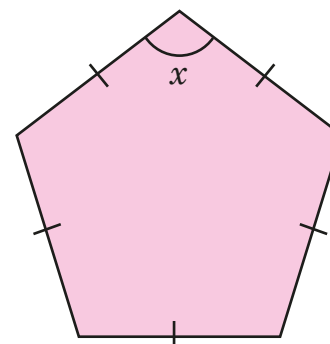
- 2 ABCD is a square.



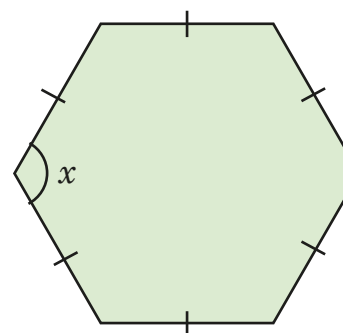
- a) What is the sum of the interior angles of the square?
- b) What is the size of each interior angle?
- c) What calculation did you do to work out the size of each interior angle?

- 3 An equilateral triangle and a square are examples of regular polygons. Describe in your own words what it means for a polygon to be regular.

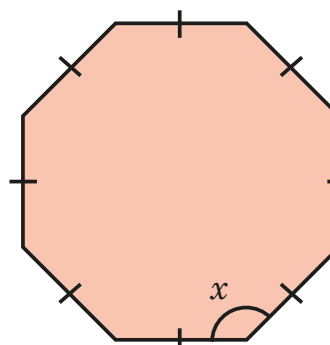
- 4 Work out the size of angle x in the regular polygons.



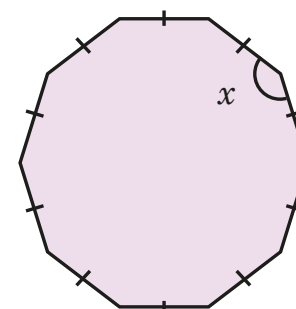
number of sides = 5
 sum of interior angles =
 $\frac{\text{sum of interior angles}}{\text{number of sides}} = \frac{\text{sum of interior angles}}{5} = \text{each interior angle}$
 $x = \text{each interior angle}$



number of sides =
 sum of interior angles =
 $\frac{\text{sum of interior angles}}{\text{number of sides}} = \frac{\text{sum of interior angles}}{\text{number of sides}} = \text{each interior angle}$
 $x = \text{each interior angle}$



number of sides =
 sum of interior angles =
 $\frac{\text{sum of interior angles}}{\text{number of sides}} = \frac{\text{sum of interior angles}}{\text{number of sides}} = \text{each interior angle}$
 $x = \text{each interior angle}$



number of sides =
 sum of interior angles =
 $\frac{\text{sum of interior angles}}{\text{number of sides}} = \frac{\text{sum of interior angles}}{\text{number of sides}} = \text{each interior angle}$
 $x = \text{each interior angle}$

5 A regular polygon has 20 sides.

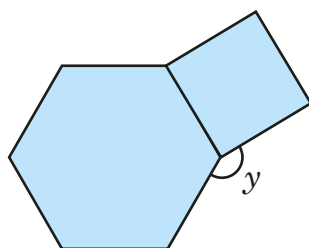
a) Work out the size of each interior angle.

b) Work out the size of each exterior angle.

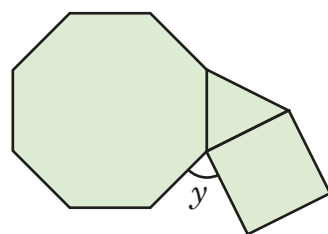
6 Each compound shape is made up of regular polygons.

Work out the size of angle y in each case.

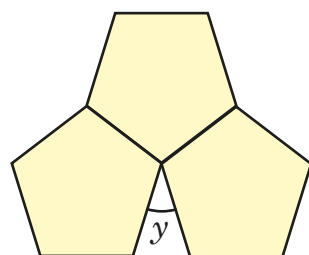
a)


 $y =$

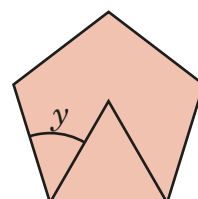
c)


 $y =$

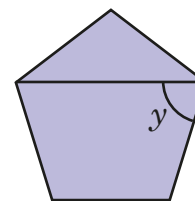
b)


 $y =$

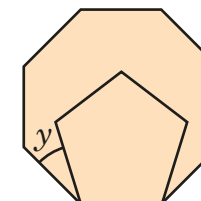
d)


 $y =$

e)


 $y =$

f)


 $y =$

7 A regular polygon has n sides.

a) Write an expression for the sum of the angles in the polygon.

b) Write an expression for the size of each interior angle in the polygon.

8 x is the exterior angle of a regular polygon.

y is the interior angle of the polygon.

$x:y = 1:8$

How many sides does the polygon have?