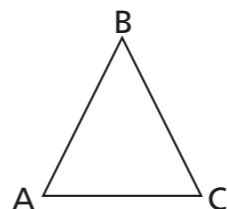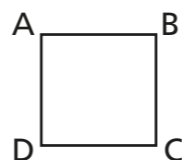# Calculate missing interior angles in regular polygons

1 ABC is an equilateral triangle.

B

A C

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   B

D   C

a) What is the sum of the interior angles of the square?

b) What is the size of each interior angle?

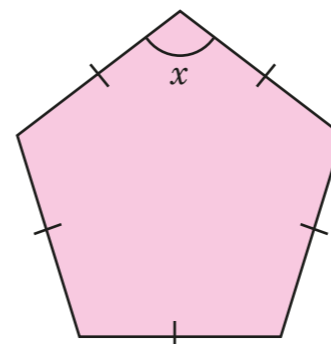c) What calculation did you do to work out the size of each interior angle?

_____

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.

_____

_____

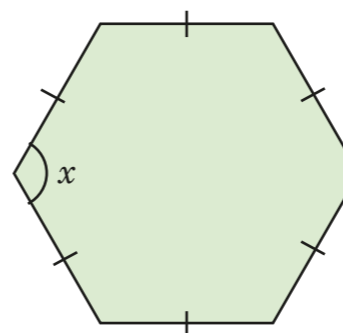**4** Work out the size of angle x in the regular polygons.

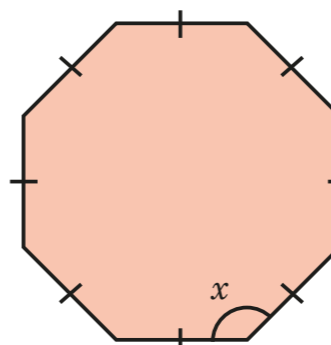number of sides = 5

sum of interior angles = ☐

☐ ÷ 5 = ☐

x = ☐
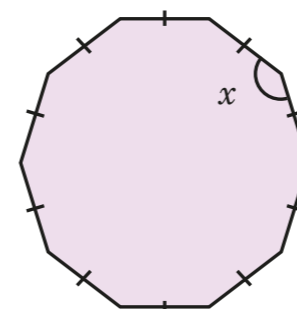
number of sides = ☐

sum of interior angles = ☐

☐ ÷ ☐ = ☐

x = ☐

number of sides = ☐

sum of interior angles = ☐

☐ ÷ ☐ = ☐

x = ☐

number of sides = ☐

sum of interior angles = ☐

☐ ÷ ☐ = ☐

x = ☐
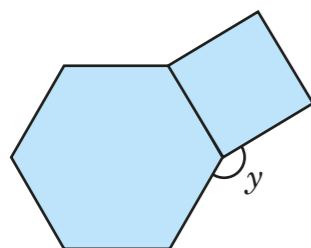
5 A regular polygon has 20 sides.

a) Work out the size of each interior angle.

[ ]

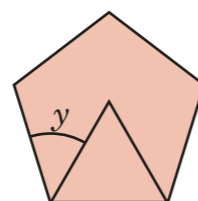**b)** Work out the size of each exterior angle.

[ ]

6 Each compound shape is made up of regular polygons.
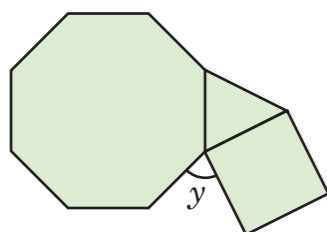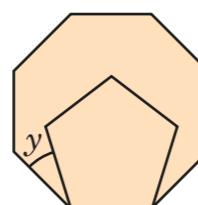
Work out the size of angle y in each case.

a)

$y =$ [ ]

b)

$y =$ [ ]

c)

$y =$ [ ]

d)

$y =$ [ ]

7 The pentagons shown are regular.

Work out the size of angle y in each case.

a)

$y =$ [ ]

b)

$y =$ [ ]

8 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.

_____

9 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?

[ ]