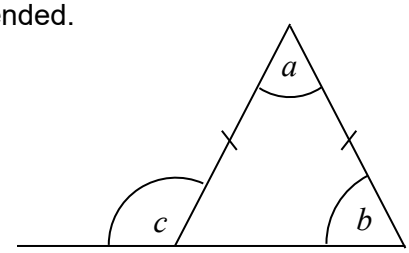
Topic Test 1 (20 minutes)

Properties of polygons - Higher

1 Here is an isosceles triangle.
The base is extended.



Circle the equation that is true.

[1 mark]

$a + b + c = 180$ $\quad a + b = c$ $\quad a = \frac{180 - b}{2}$ $\quad c = 180 - a + b$

2 (a) Work out the exterior angle of a regular hexagon.

[2 marks]

Answer _____ degrees

2 (b) Write down the interior angle.

[1 mark]

Answer _____ degrees

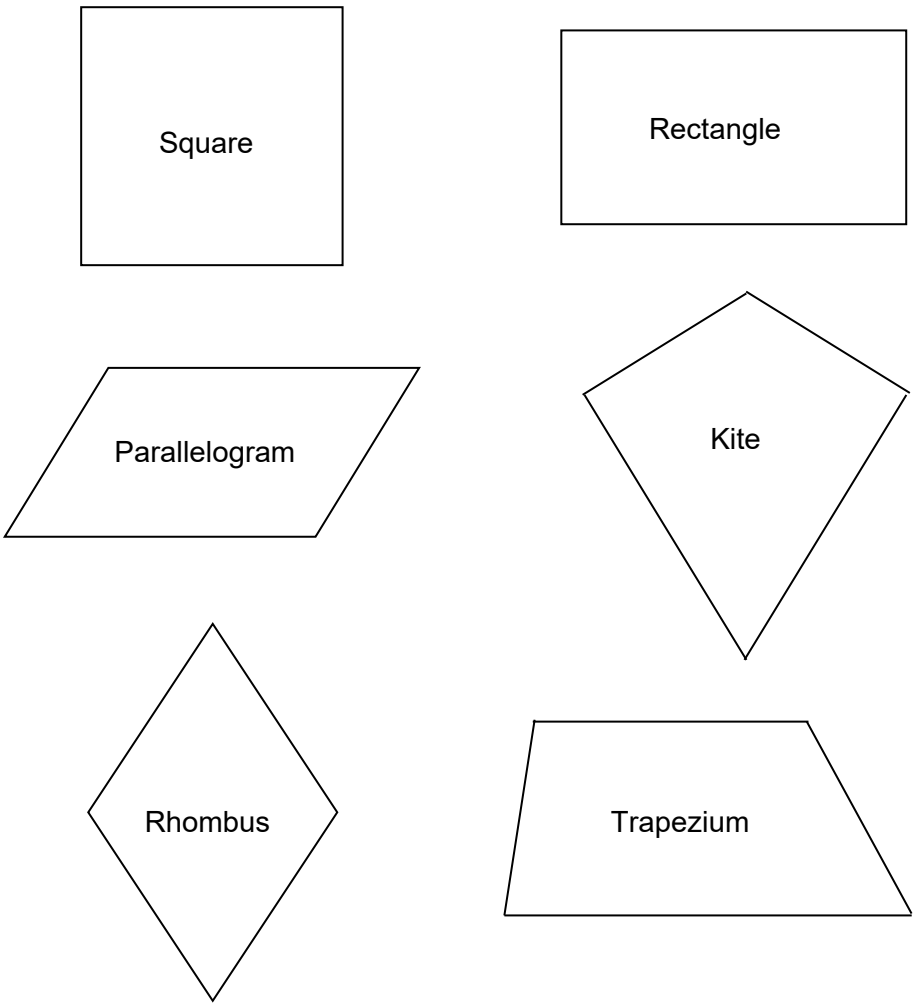
3 Which of the following properties is true for a kite.
Circle your answer.

[1 mark]

Rotational symmetry order 2 | Opposite angles equal

Diagonals bisect each other | One line of symmetry

4 Here are six quadrilaterals.



4 (a) Write down the names of the quadrilaterals that have no lines of symmetry.

[1 mark]

Answer _____

4 (b) Three of the quadrilaterals are

square rectangle rhombus.

Give a reason why the rectangle could be the odd one out.

[1 mark]

Give a reason why the rhombus could be the odd one out.

[1 mark]

4 (c) Tick the **one** property that these three quadrilaterals have in common

square rectangle rhombus

[1 mark]

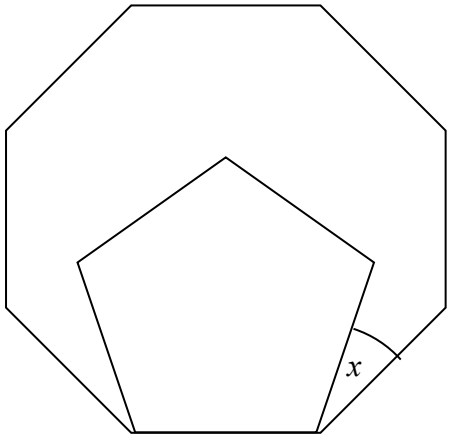
All four sides the same length ☐

All four angles 90° ☐

Diagonals bisect each other ☐

No lines of symmetry ☐

5 A regular pentagon and a regular octagon have sides the same length.
The pentagon is drawn inside the octagon as shown.



Not drawn accurately

Work out the size of angle x.

[3 marks]

Answer _____ degrees

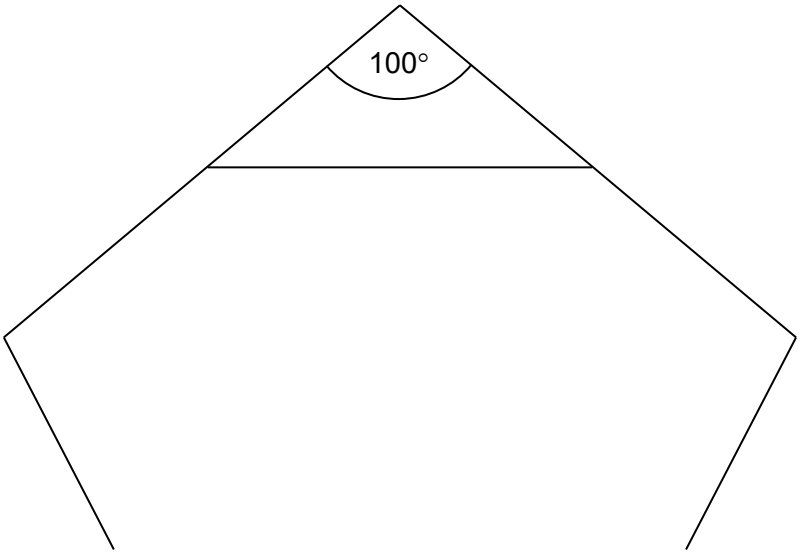
6 Which of the following formulas does **not** work out one of the interior angles of a regular n-sided polygon?
Circle your answer.

[1 mark]

$360 \times \left(\frac{1}{2} - \frac{n}{2}\right)$ $\frac{180 \times (n-2)}{n}$ $360 \times \left(\frac{1}{2} - \frac{2}{n}\right)$ $180 - \frac{360}{n}$

7 A regular polygon has two sides extended.
The angle between the extended sides is 100°

Not drawn accurately

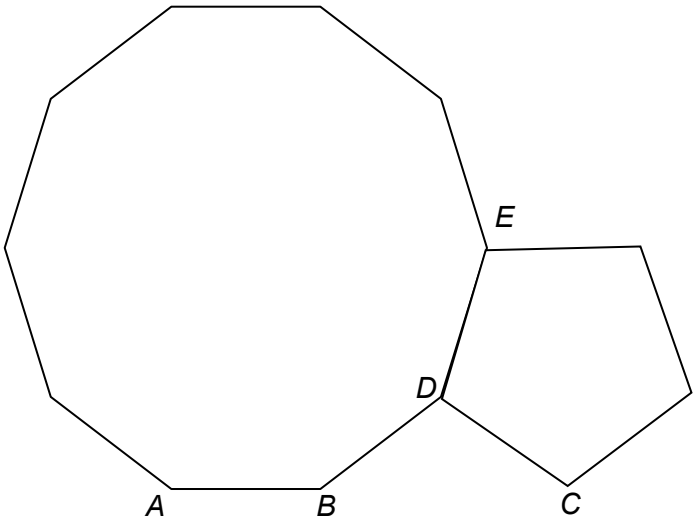


How many sides does the polygon have?
You **must** show your working.

[3 marks]

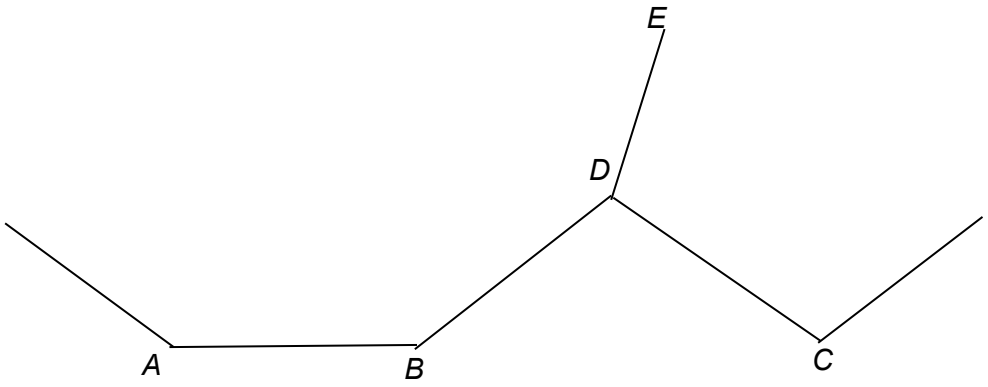
Answer _____

8 A regular decagon and a regular pentagon have sides the same length.
They are joined as shown.



Prove that *ABC* is a straight line.
To help you part of the diagram is reproduced below.
Your working may be shown on the diagram.

[4 marks]



Not drawn accurately