Angles in Polygons

Mark Scheme

Level	GCSE
Subject	Maths
Exam Board	Edexcel GCSE
Topic	Angles in Polygons
Grade Level	Grade 4
Booklet	Mark Scheme

Time Allowed: **45 minutes**

Score: **/37**

Percentage: **/100**

Grade Boundaries:

1. Each exterior angle of a regular polygon is 30°.

Work out the number of sides of the polygon.

$$\frac{360}{30} = 12$$

12

(2 marks)

2.

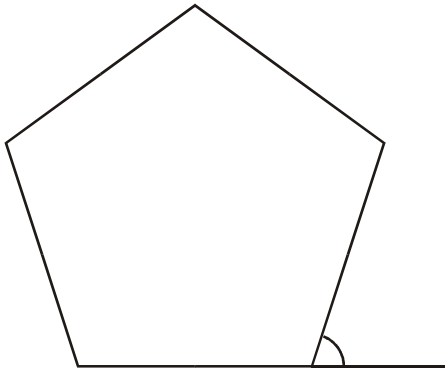


Diagram **NOT** accurately drawn

Work out the size of an exterior angle of a regular pentagon.

$$\frac{360}{5}$$

72 °

(2 marks)

3.

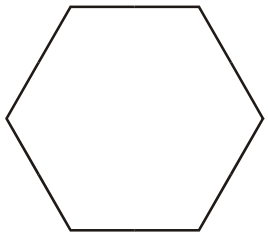


Diagram **NOT** accurately drawn

Calculate the size of the exterior angle of a regular hexagon.

$$\frac{360}{6}$$

60 °

(2 marks)

4. The size of each exterior angle of a regular polygon is 40°.

Work out the number of sides of the regular polygon.

$\frac{360}{40}$

..... 9 .....

(2 marks)

5. The size of each interior angle of a regular polygon is 156°.
Work out the number of sides of the polygon.

Ext angle = 180 - 156
= 24

$\frac{360}{24} = 15$

..... 15 .....

(3 marks)

6. Here is a regular polygon with 9 sides.

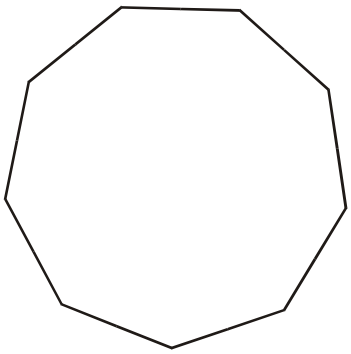


Diagram **NOT** accurately drawn

Work out the size of an exterior angle.

$\frac{360}{9} = 40°$

..... 40 .....°

(2 marks)

7.

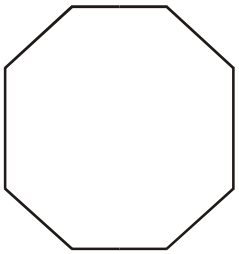


Diagram **NOT** accurately drawn

OR

$\frac{360}{8} = 45$

$180 - 45 = 135$

(a) Work out the size of each interior angle of a regular octagon.

$(n-2) \times 180$

$(8-2) \times 180$

6×180

$1080 \div 8$

135

~~1080~~

.....

(3)

The size of each exterior angle of a regular polygon is 30^0

(b) Work out the number of sides of the polygon.

$\frac{360}{30}$

12

.....

(2)

(5 marks)

8.

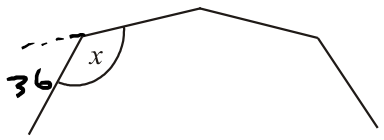


Diagram **NOT** accurately drawn

The diagram shows part of a **regular** 10-sided polygon.

Work out the size of the angle marked x.

ext angle $= \frac{360}{10} = 36$

$180 - 36 = 144$

144 °

(3 marks)

9.

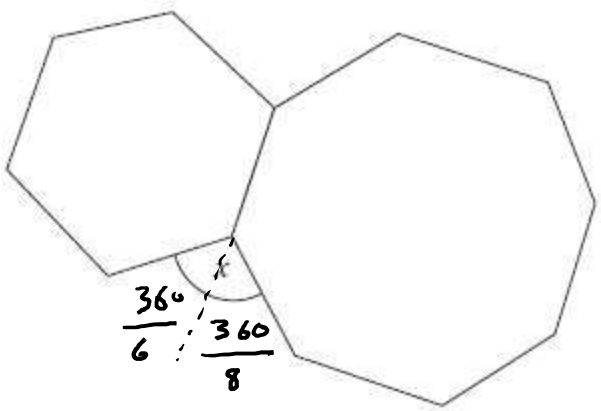


Diagram **NOT** accurately drawn

The diagram shows a regular hexagon and a regular octagon.

Calculate the size of the angle marked x.
You must show all your working.

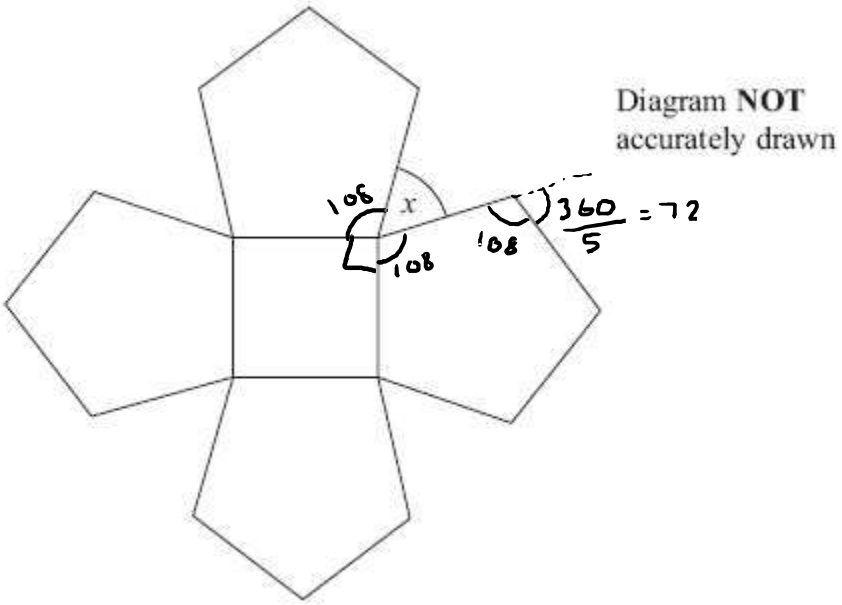
$\frac{360}{6} + \frac{360}{8}$

$60 + 45$

105 .....°

(4 marks)

10.



The diagram shows a square and 4 regular pentagons.

Work out the size of the angle marked x.

360 − 108 − 108 − 90

54 °

(4 marks)

11.

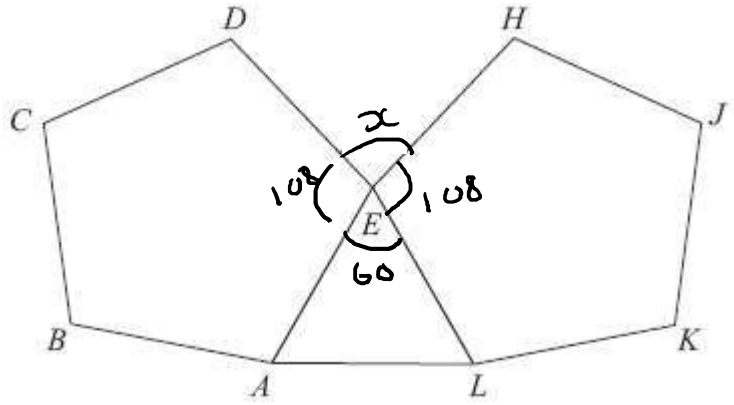


Diagram **NOT** accurately drawn

ABCDE and *EHJKL* are regular pentagons.
AEL is an equilateral triangle.

Work out the size of angle *DEH.*

360 − 108 − 108 − 60

84 .....°

(4 marks)

12. The diagram shows part of a pattern made from tiles.

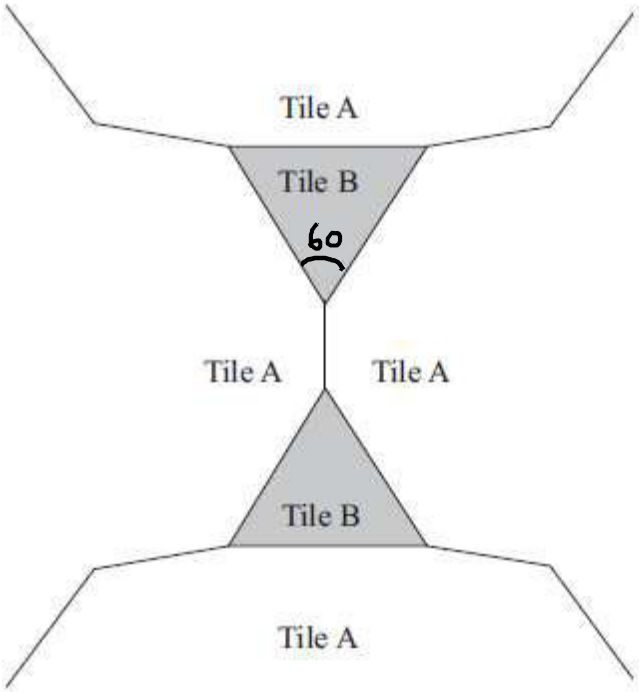


Diagram **NOT** accurately drawn

The pattern is made from two types of tiles, tile A and tile B.

Both tile A and tile B are regular polygons.

Work out the number of sides tile A has.

$360 - 60 = 300$

$\text{interior angle} = \frac{300}{2} = 150^\circ$

$\text{exterior angle} = 180 - 150 = 30$

$\frac{360}{30} = 12$

12

(4 marks)