Lesson 11

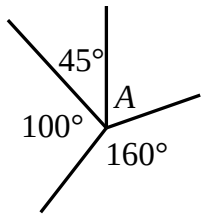
GCSE Mathematics
Angles & Polygons

You may use a calculator
Marks Available : 60

11.1 Revision

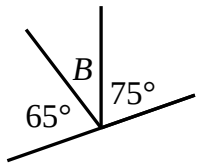
Question 1

(i) Find angle *A*



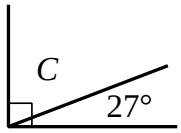
[1 mark]

(ii) Find angle *B*



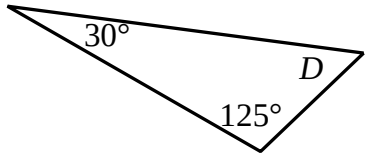
[1 mark]

(iii) Find angle *C*



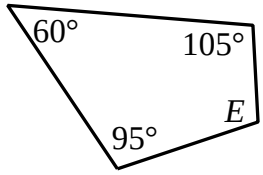
[1 mark]

(iv) Find angle *D*



[1 mark]

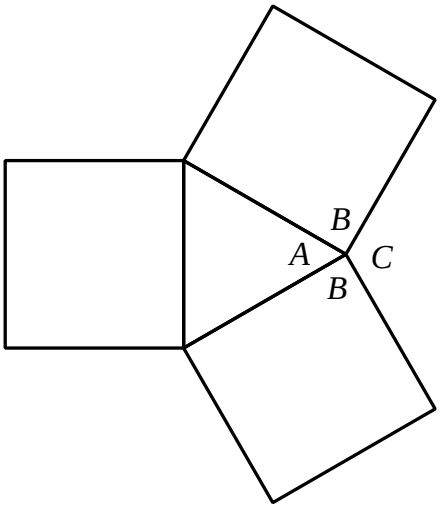
(v) Find angle *E*



[1 mark]

Question 2

The diagram shows an equilateral triangle surrounded by three squares.



Write down the size of the following angles;

(i) *A*

[1 mark]

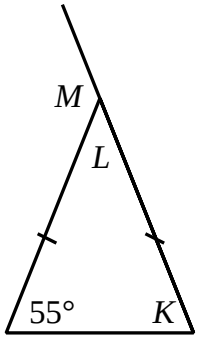
(ii) *B*

[1 mark]

(iii) *C*

[1 mark]

Question 3



An isosceles triangle is shown.

Write down the size of the following angles;

(i) *K*

[1 mark]

(ii) *L*

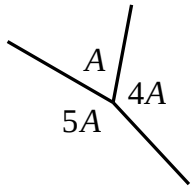
[1 mark]

(iii) *M*

[1 mark]

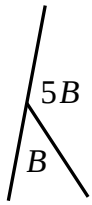
Question 4

(i) Find angle A



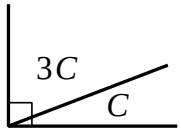
[1 mark]

(ii) Find angle B



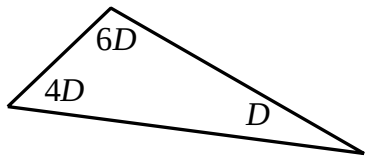
[1 mark]

(iii) Find angle C



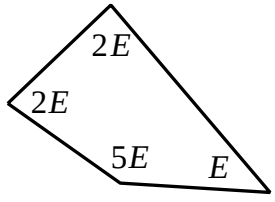
[1 mark]

(iv) Find angle D



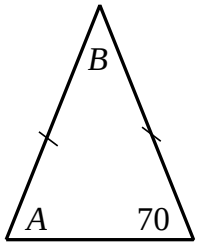
[1 mark]

(v) Find angle E



[1 mark]

Question 5

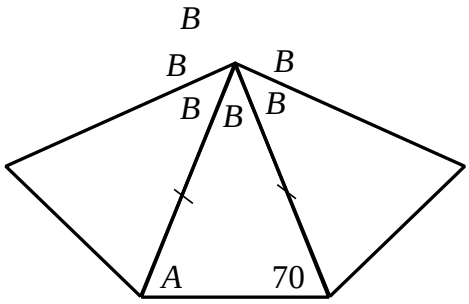


(a) What is the size of angle;

(i) *A* **(ii)** *B*

[1, 1 mark]

(b) As many copies of this triangle as needed are used to form a polygon.

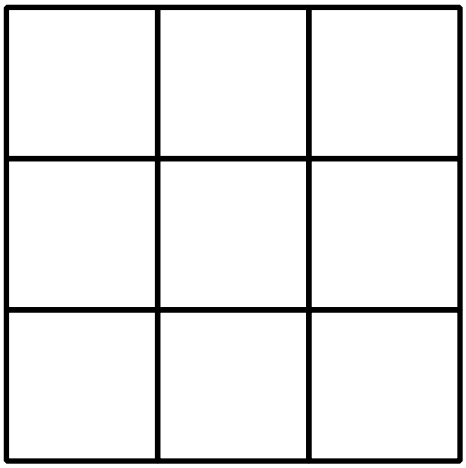


How many sides will the polygon formed have ?

[1 mark]

Question 6

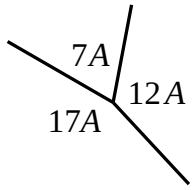
How many squares are contained within this figure ?



[3 marks]

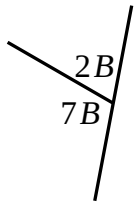
Question 7

(i) Determine the value of A, and hence **list the three angles**.



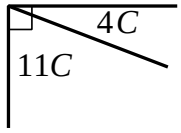
[2 marks]

(ii) Determine the value of B, and hence **list the two angles**.



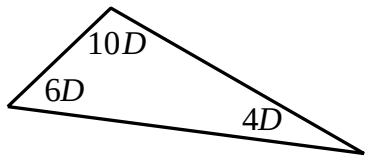
[2 marks]

(iii) Determine the value of C, and hence **list the two angles**.



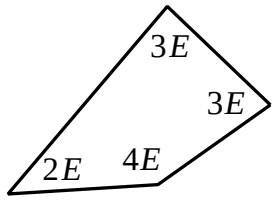
[2 marks]

(iv) Determine the value of D, and hence **list the three angles**.



[2 marks]

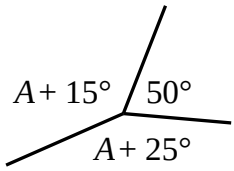
(v) Determine the value of E, and hence **list the four angles**.



[2 marks]

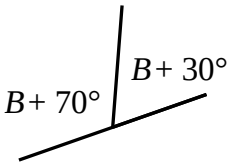
Question 8

(i) Determine the value of A, and hence **list the three angles**.



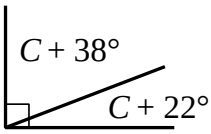
[2 marks]

(ii) Determine the value of B, and hence **list the two angles**.



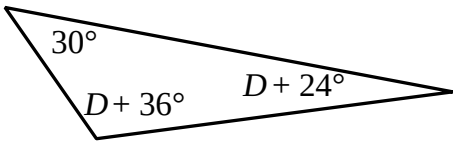
[2 marks]

(iii) Determine the value of C, and hence **list the two angles**.



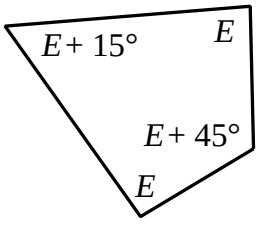
[2 marks]

(iv) Determine the value of D, and hence **list the three angles**.



[2 marks]

(v) Determine the value of E, and hence **list the four angles**.



[2 marks]

Question 9

Recall that for a regular polygon,

$$one\ exterior\ angle\ =\ \frac{360}{number\ of\ sides}$$

and that

$$interior\ angle\ +\ exterior\ angle\ =\ 180$$

For a decagon use these formulae to determine;

(a) one exterior angle

[1 mark]

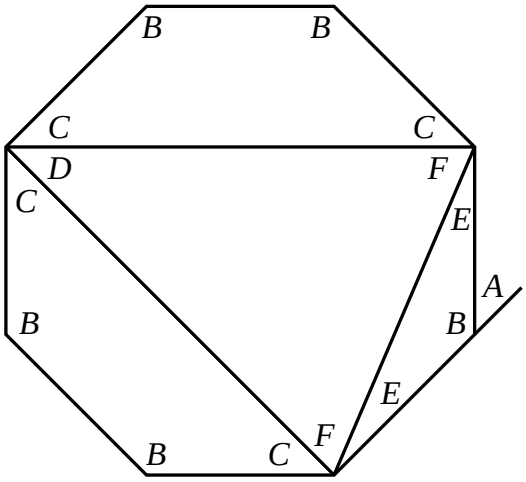
(b) one interior angle

[1 mark]

(c) the sum of all ten interior angles

[1 mark]

Question 10



For the regular octagon shown, determine;

(i) The exterior angle, *A*, by using a suitable formula.

[2 marks]

(ii) An interior angle, *B*, by using a suitable formula.

[2 marks]

(iii) *C*

[1 mark]

(iv) *D*

[1 mark]

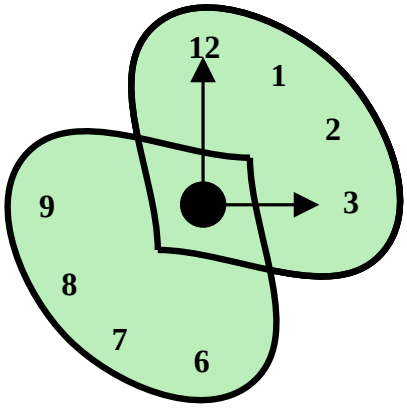
(v) *E*

[1 mark]

(vi) *F*

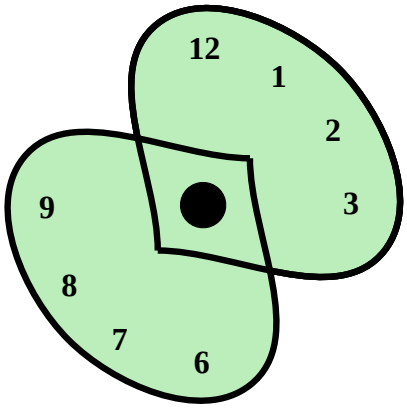
[1 mark]

Question 11



(i) What is the angle between the hands of a clock at 3 pm ?

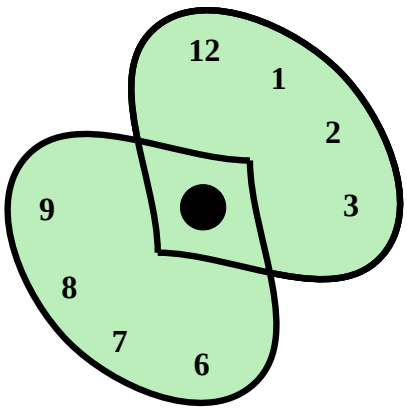
[1 mark]



(ii) Carefully draw the hands on the clock face when the time is 3.30 am.

(iii) What is the angle between the hands of a clock at 3.30 am ?

[2 marks]



(iv) Carefully draw the hands on the clock face when the time is 3.15 am.

(v) What is the angle between the hands of a clock at 3.15 am ?

[2 marks]

Question 12

Here is a formula that works out the sum of the interior angles of a regular polygon;

$$Sum\ interior\ =\ 180\ (\ n\ -\ 2\ )$$

where n is the number of sides of the polygon.

(i) When $n = 12$, what will be the sum of the interior angles ?

[1 mark]

(ii) If I have a regular polygon with internal angles that sum to 3600, how many sides does the polygon have ?

[1 mark]