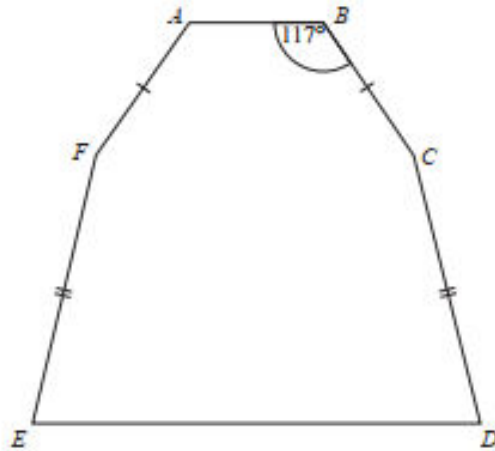


ANGLES IN POLYGONS

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

1.

- 5 The diagram shows a hexagon.
The hexagon has one line of symmetry.



$$FA = BC$$

$$EF = CD$$

$$\text{Angle } ABC = 117^\circ$$

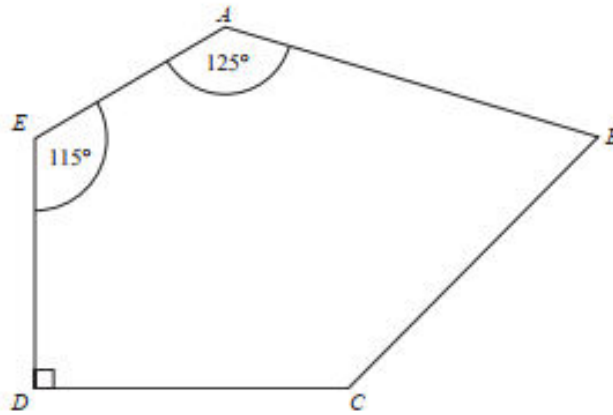
$$\text{Angle } BCD = 2 \times \text{angle } CDE$$

Work out the size of angle AFE .
You must show all your working.

(Total for Question 5 is 4 marks)

2.

8 $ABCDE$ is a pentagon.



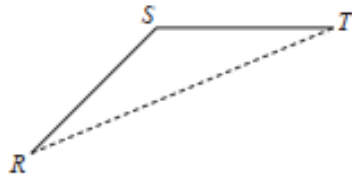
Angle $BCD = 2 \times$ angle ABC

Work out the size of angle BCD .
You must show all your working.

(Total for Question 8 is 5 marks)

3.

12



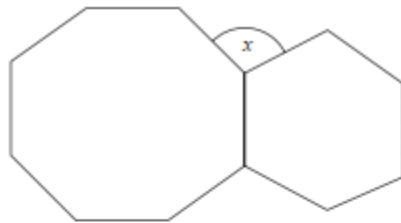
RS and ST are 2 sides of a regular 12-sided polygon.
 RT is a diagonal of the polygon.

Work out the size of angle STR .
You must show your working.

.....
.....

(Total for Question 12 is 3 marks)

4



The diagram shows a regular octagon and a regular hexagon.

Find the size of the angle marked x

You must show all your working.

$$x = \text{.....}^\circ$$

(Total for Question 4 is 3 marks)

Pearson Edexcel - Thursday 9 June 2016 - Paper 2 (Calculator) Higher Tier

5.

12

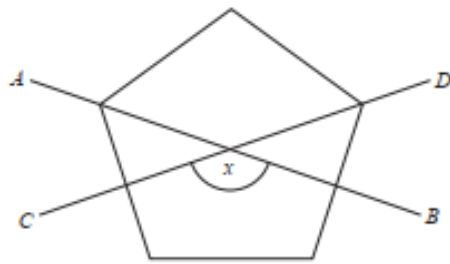


Diagram NOT
accurately drawn

The diagram shows a regular pentagon.
 AB and CD are two of the lines of symmetry of the pentagon.

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

.....

(Total for Question 12 is 4 marks)

Pearson Edexcel - Wednesday 4 November 2015 - Paper 1 (Non-Calculator) Higher Tier

6.

14

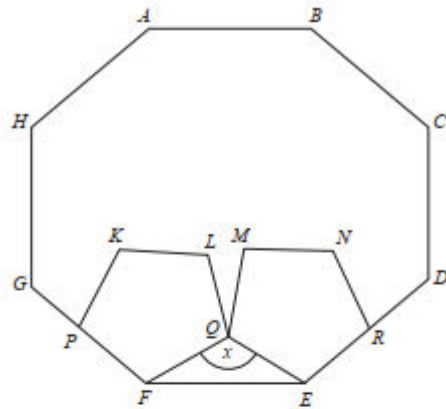


Diagram NOT
accurately drawn

$ABCDEFGH$ is a regular octagon.
 $KLQFP$ and $MNREQ$ are two identical regular pentagons.

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

(Total for Question 14 is 4 marks)

Pearson Edexcel - Thursday 4 June 2015 - Paper 1 (Non-Calculator) Higher Tier

7.

17

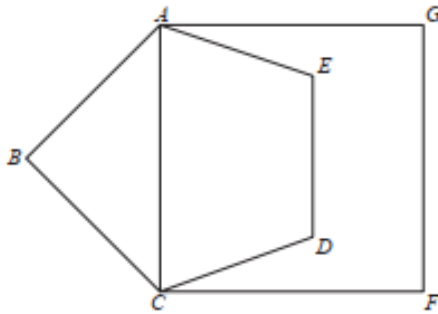


Diagram **NOT**
accurately drawn

$ABCDE$ is a regular pentagon.
 $ACFG$ is a square.

Work out the size of angle DCF .
You must show all your working.

.....°

(Total for Question 17 is 4 marks)

17

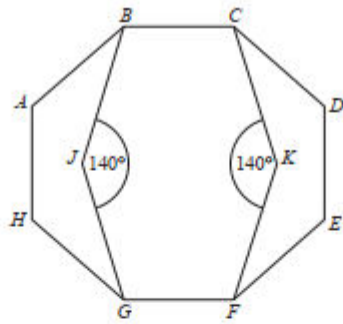


Diagram NOT
accurately drawn

$ABCDEFGH$ is a regular octagon.
 $BCKFGJ$ is a hexagon.

JK is a line of symmetry of the hexagon.
Angle $BJG = \text{angle } CKF = 140^\circ$

Work out the size of angle KFE .
You must show all your working.

(Total for Question 17 is 4 marks)

11

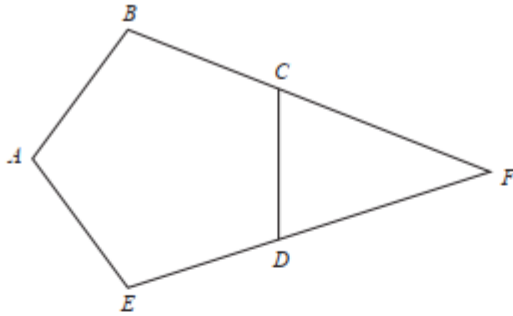


Diagram **NOT**
accurately drawn

ABCDE is a regular pentagon.
BCF and *EDF* are straight lines.

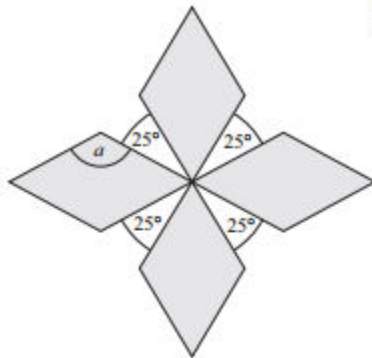
Work out the size of angle *CFD*.
You must show how you got your answer.

.....
.....

(Total for Question 11 is 3 marks)

9 The diagram shows a pattern using four identical rhombuses.

Diagram NOT
accurately drawn



Work out the size of the angle marked a .
You must show your working.

(Total for Question 9 is 4 marks)

13

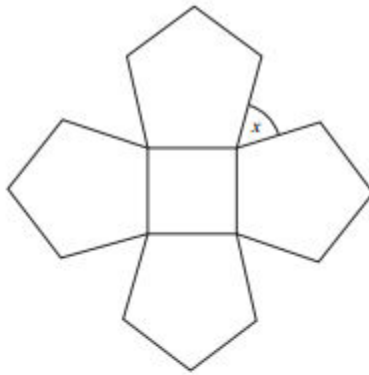


Diagram NOT
accurately drawn

The diagram shows a square and 4 regular pentagons.
Work out the size of the angle marked x .

(Total for Question 13 is 3 marks)

Pearson Edexcel - Monday 11 June 2012 - Paper 1 (Non-Calculator) Higher Tier

12.

13

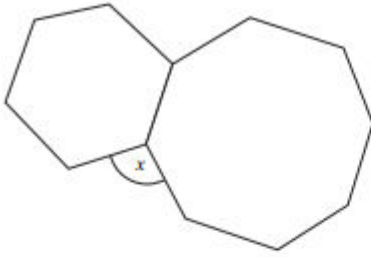


Diagram NOT
accurately drawn

The diagram shows a regular hexagon and a regular octagon.

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

(Total for Question 13 is 4 marks)

Pearson Edexcel - Wednesday 9 November 2011 - Paper 3 (Non-Calculator) Higher Tier

13.

3.

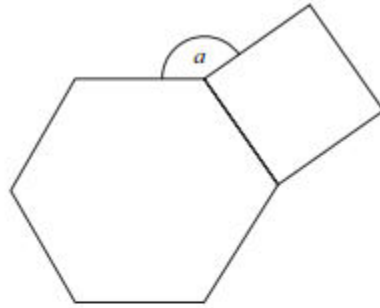


Diagram **NOT**
accurately drawn

The diagram shows a regular hexagon and a square.

Calculate the size of the angle a .

.....
(Total 4 marks)

Pearson Edexcel - Wednesday 9 November 2011 - Paper 3 (Non-Calculator) Higher Tier

14.

10.

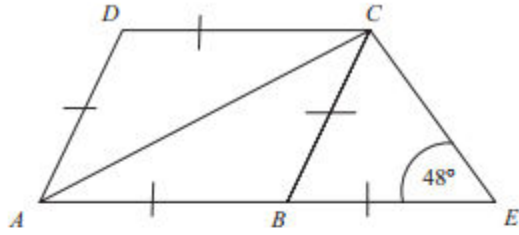


Diagram **NOT**
accurately drawn

ABCD is a rhombus.
BCE is an isosceles triangle.
ABE is a straight line.

Work out the size of angle *DCA*.

.....
°
(Total 3 marks)

12.



Diagram **NOT**
accurately drawn

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

.....°

(Total 2 marks)

16.

- 5 (a) Work out the size of the exterior angle of a regular 12-sided polygon.

(a)° [2]

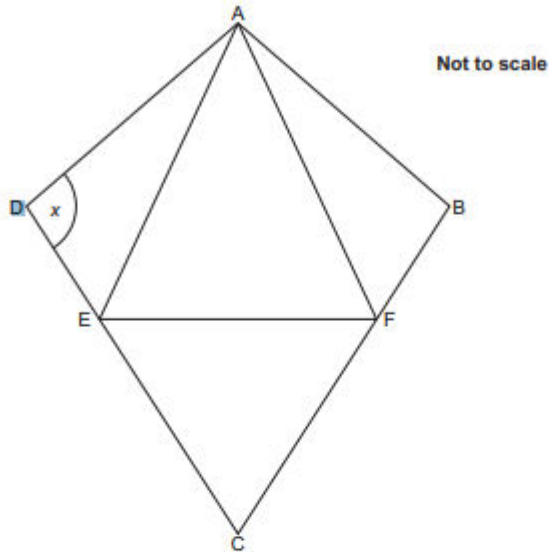
- (b) Use your answer to part (a) to write down the size of the interior angle of a regular 12-sided polygon.

(b)° [1]

OCR GSCE – Thursday 7 November 2019 – Paper 5 (Non-Calculator) Higher Tier

17.

- 8 The diagram shows a kite, ABCD.
AFE and CEF are equilateral triangles.



- (a) Write down a mathematical name for quadrilateral AFCE.

(a) [1]

- (b) The ratio of angle DAE : angle EAF = 1 : 4.

Work out angle x .

Write on the diagram the values of any other angles you use in your working.

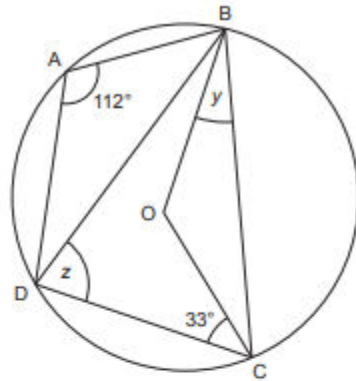
(b) $x =$ ° [4]

OCR GCSE – Thursday 6 June 2019 – Paper 5 (Non-Calculator) Higher Tier

18.

16 A, B, C and D are points on the circumference of a circle, centre O.

Angle $BAD = 112^\circ$ and angle $DCO = 33^\circ$.



Not to scale

- (a) Show that angle $y = 35^\circ$.
Give reasons for each stage of your working.

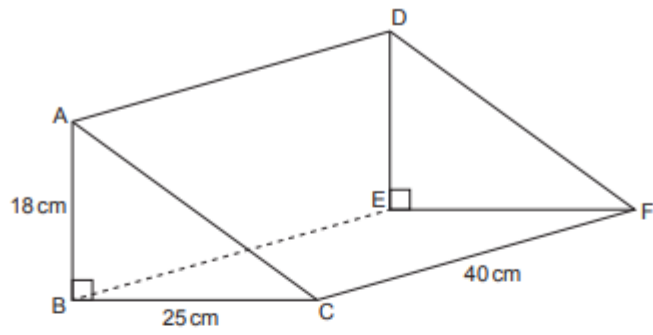
[4]

- (b) Work out angle z .
Give reasons for your answer.

Angle $z = \dots\dots\dots^\circ$ because $\dots\dots\dots$
 $\dots\dots\dots$
 $\dots\dots\dots$ [3]

19.

20 The diagram shows a right-angled triangular prism ABCDEF.



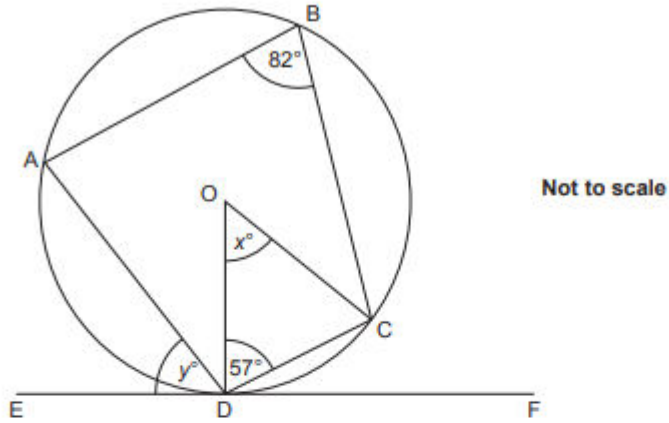
Calculate angle AFB.

..... ° [6]

20.

19 The diagram shows a circle, centre O.

Points A, B, C and D lie on the circumference of the circle.
 EDF is a tangent to the circle.
 Angle ABC = 82° and angle ODC = 57° .



(a) Work out the value of x .

(a) $x = \dots\dots\dots$ [2]

(b) Work out the value of y .

(b) $y = \dots\dots\dots$ [3]

OCR GCSE – Monday 12 November 2018 – Paper 6 (Calculator) Higher Tier

21.

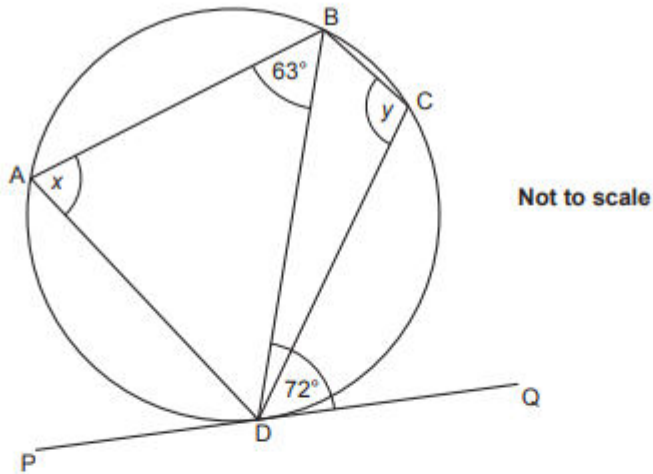
- 11 A regular polygon has n sides.
The polygon's interior angle is 5 times the size of its exterior angle.

Find n .

$n =$ [5]

22.

16 A, B, C and D are points on the circumference of a circle.



PQ is a tangent to the circle at D.
Angle $BDQ = 72^\circ$ and angle $ABD = 63^\circ$.

- (a) Work out angle x .
Give a reason for your answer.

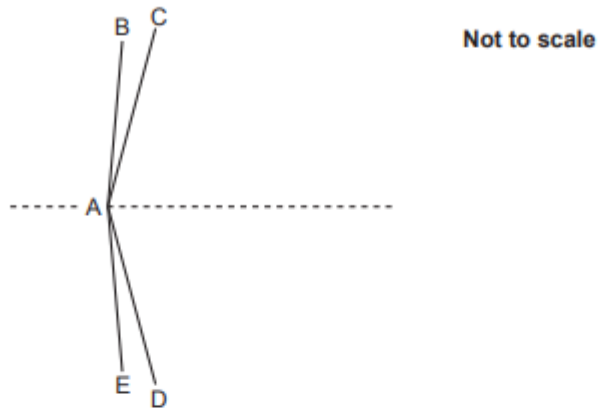
Angle $x = \dots\dots\dots^\circ$ because $\dots\dots\dots$
 $\dots\dots\dots$ [2]

- (b) Work out angle y .
Give a reason for your answer.

Angle $y = \dots\dots\dots^\circ$ because $\dots\dots\dots$
 $\dots\dots\dots$ [2]

23.

- 7 Angle BAE is part of a regular 18-sided polygon.
Angle CAD is part of a regular 10-sided polygon.
The dashed line through A is a line of symmetry of both polygons.

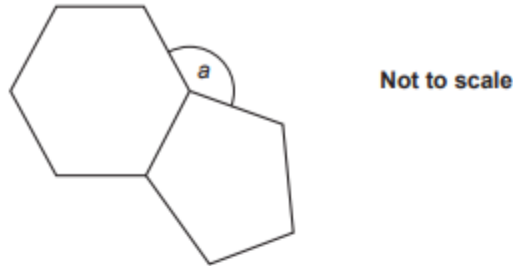


Work out angle BAC.

..... ° [5]

24.

- 8 Imran joins two tiles together as shown below.
One tile is a regular hexagon and the other tile is a regular pentagon.



- (a) Show that angle a is 132° .

.....
.....
..... [3]

- (b) Imran thinks that another tile in the shape of a regular polygon will fit **exactly** into angle a .

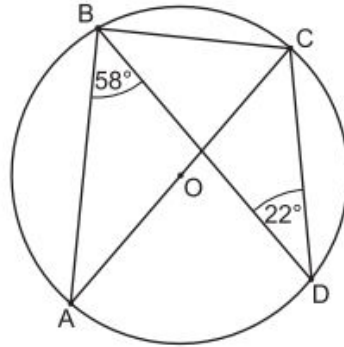
Is Imran correct?
Show your reasoning.

..... [3]

OCR GCSE – Sample Papers – Paper 4 (Calculator) Higher Tier

25.

- 16 A, B, C and D are points on the circumference of a circle, centre O.
AC is a diameter of the circle.
Angle ABD = 58° .
Angle CDB = 22° .



Not to scale

Work out the sizes of angle ACD and ACB, giving reasons for your answers.

(a) Angle ACD = $^\circ$

.....
..... [2]

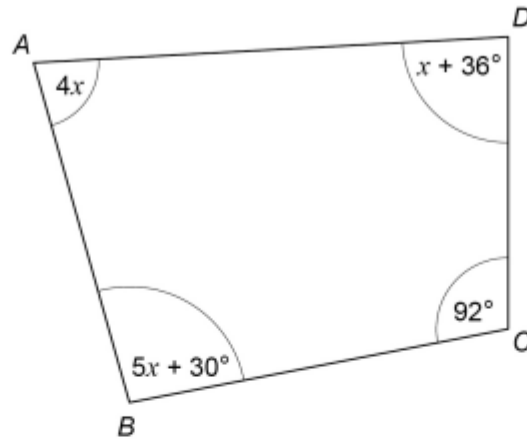
(b) Angle ACB = $^\circ$

.....
.....
..... [3]

26.

23 *ABCD* is a quadrilateral.

Not drawn accurately

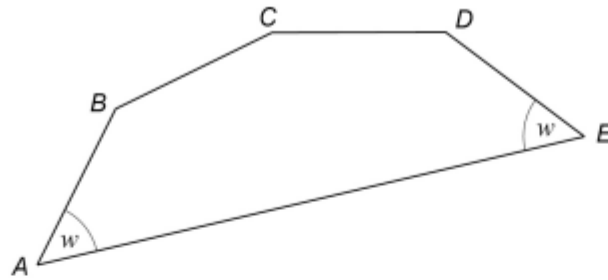


Prove that *ABCD* is **not** a cyclic quadrilateral.

[4 marks]

27.

20 AB, BC, CD and DE are four of the sides of a regular decagon.



Not drawn accurately

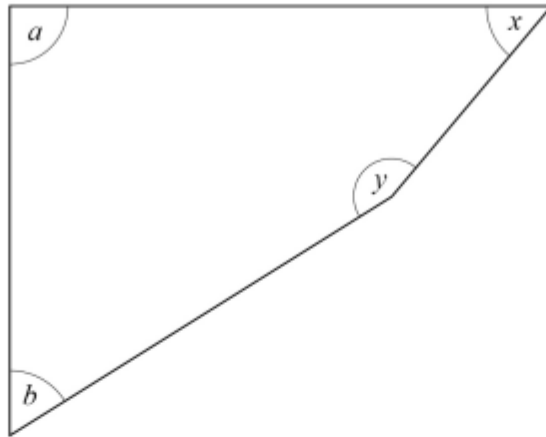
Work out the size of angle w .

[3 marks]

Answer _____ degrees

28.

14 Here is a quadrilateral.



Not drawn accurately

$a = 90^\circ$ and $a : b = 5 : 3$

$x : y = 1 : 3$

Show that $b = x$

[3 marks]

AQA GCSE – Tuesday 6 November 2018 – Paper 1 (Non - Calculator) Higher Tier

29.

- 7 The sum of the angles in any quadrilateral is 360°
For example, in a rectangle $4 \times 90^\circ = 360^\circ$

Zak writes,

$$5 \times 90^\circ = 450^\circ \text{ so the sum of the angles in any pentagon must be } 450^\circ$$

Is he correct?

Tick a box.

Yes

No

Show working to support your answer.

[2 marks]

AQA GCSE – Tuesday 12 June 2018 – Paper 3 (Calculator) Higher Tier

30.

- 4 What is the size of an exterior angle of a regular decagon?
Circle your answer.

[1 mark]

18°

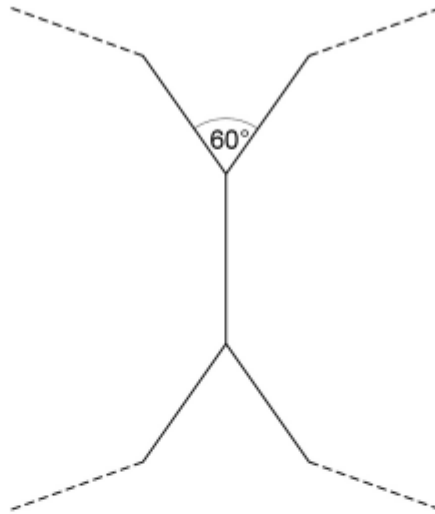
36°

144°

162°

31.

14 Two congruent regular polygons are joined together.



Not drawn accurately

Work out the number of sides on each polygon.

[3 marks]

Answer _____

AQA GCSE – Sample Paper 3 (Calculator) Higher Tier

32.

- 9 The exterior angle of a regular polygon is 45°
Circle the name of the regular polygon.

[1 mark]

pentagon

hexagon

octagon

decagon