ANGLES IN POLYGONS

Pearson Edexcel - Thursday 4 June 2020 - Paper 2 (Calculator) Foundation Tier

1.

28 Each exterior angle of a regular polygon is 15°

Work out the number of sides of the polygon.

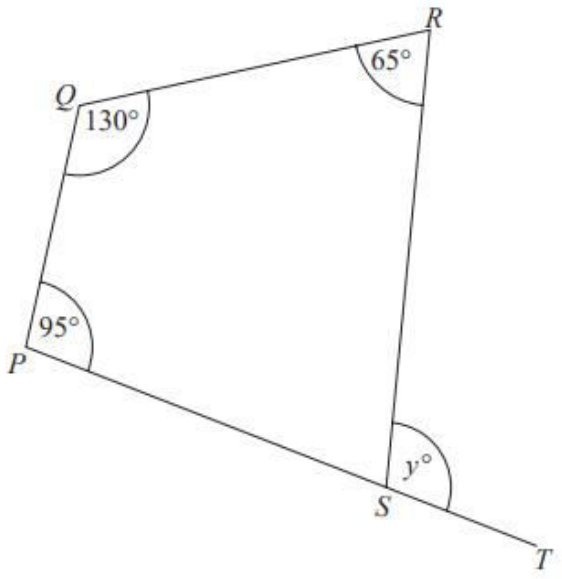
.....

(Total for Question 28 is 2 marks)

Pearson Edexcel - Monday 8 June 2020 - Paper 3 (Calculator) Foundation Tier

2.

11 *PQRS* is a quadrilateral.
PST is a straight line.



Find the value of y.

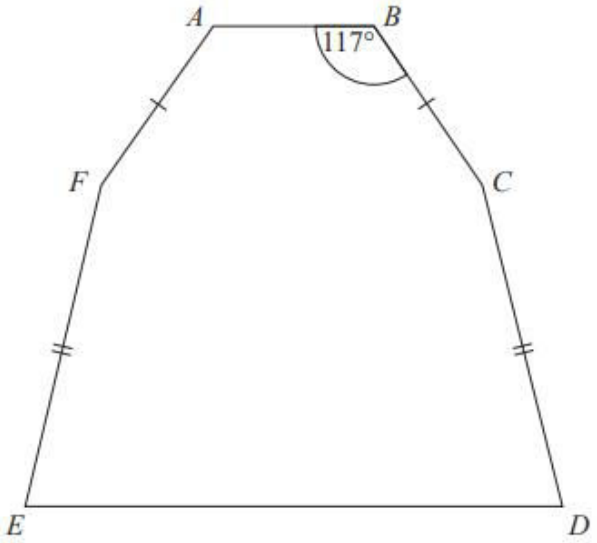
$y =$ .....

(Total for Question 11 is 3 marks)

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

3.

28 The diagram shows a hexagon.
The hexagon has one line of symmetry.



$FA = BC$
$EF = CD$
Angle $ABC = 117°$

Angle $BCD = 2 \times$ angle CDE

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

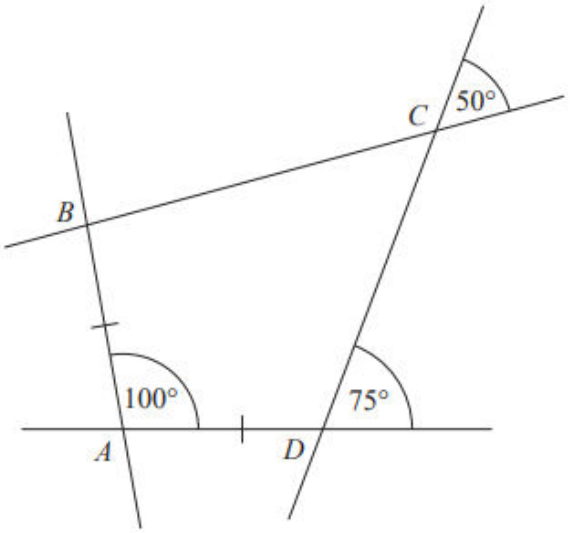
.....°

(Total for Question 28 is 4 marks)

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Foundation Tier

4.

14 The diagram shows quadrilateral $ABCD$ with each of its sides extended.



$AB = AD$

Show that $ABCD$ is a kite.
Give a reason for each stage of your working.

(Total for Question 14 is 4 marks)

5.

28 The size of each interior angle of a regular polygon is 11 times the size of each exterior angle.

Work out how many sides the polygon has.

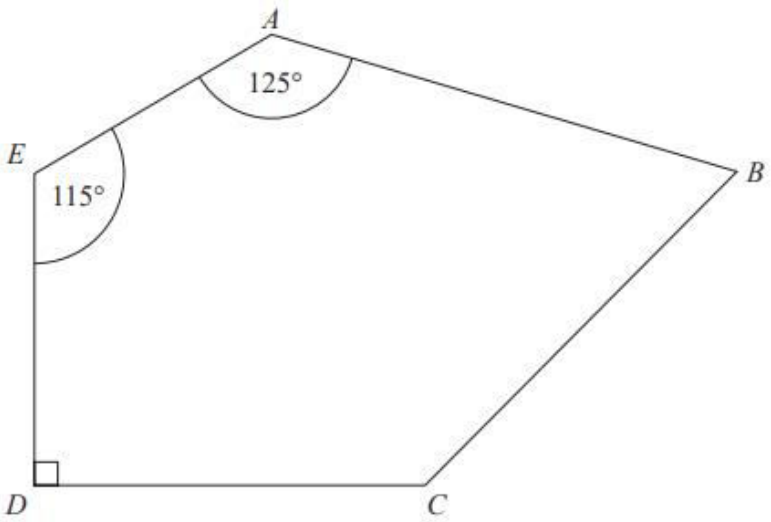
.....

(Total for Question 28 is 3 marks)

Pearson Edexcel - Tuesday 12 June 2018 - Paper 3 (Calculator) Foundation Tier

6.

26 *ABCDE* is a pentagon.



Angle $BCD = 2 \times$ angle ABC

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

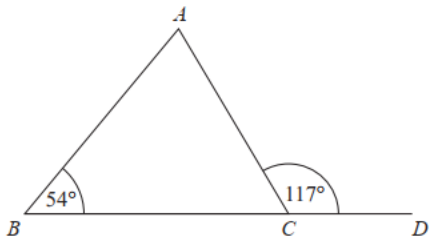
.....°

(Total for Question 26 is 5 marks)

Pearson Edexcel - Wednesday 8 November 2017 - Paper 3 (Calculator) Foundation Tier

7.

7



BCD is a straight line.
ABC is a triangle.

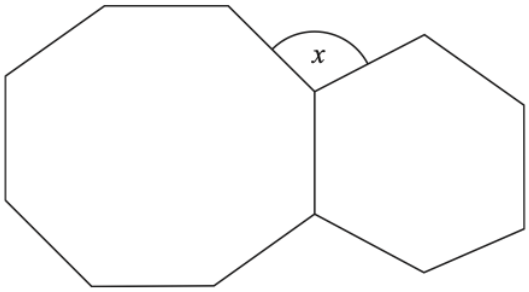
Show that triangle *ABC* is an isosceles triangle.
Give a reason for each stage of your working.

(Total for Question 7 is 4 marks)

Pearson Edexcel – Specimen 2 - Paper 2 (Calculator) Foundation Tier

8.

25



The diagram shows a regular octagon and a regular hexagon.

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

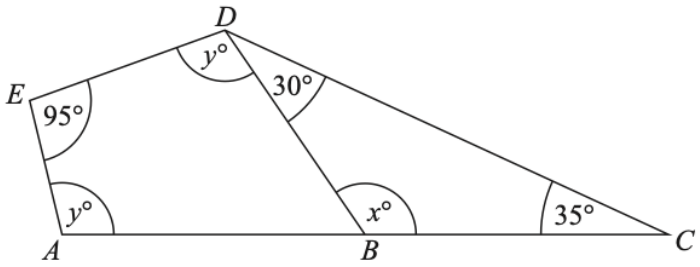
$x =$ ..... °

(Total for Question 25 is 3 marks)

Pearson Edexcel – Specimen 2 - Paper 3 (Calculator) Foundation Tier

9.

13



ABC is a straight line.
BCD is a triangle.
ABDE is a quadrilateral.

(a) (i) Work out the value of x.

.....

(ii) Give a reason for your answer.

.....

.....

(2)

(b) Work out the value of y.

.....

(2)

(Total for Question 13 is 4 marks)

OCR Thursday 05 November 2020- Morning (Non-Calculator) Foundation Tier

10.

5 **(a)** Write down the mathematical name of each of these shapes.

(i) A triangle with 3 equal sides.

(a)(i) ..... triangle **[1]**

(ii) A quadrilateral with 4 equal sides and no right angles.

(ii) ..... **[1]**

(b) Here is a rectangle.

(i) On the diagram, draw the rectangle's two lines of symmetry. **[1]**

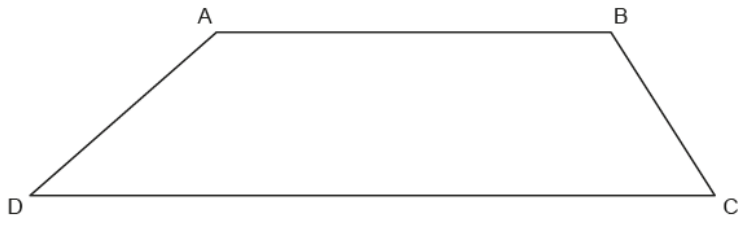
(ii) The rectangle has rotation symmetry of order 2.

Amaya says

A rectangle is the only quadrilateral that has rotation symmetry of order 2.

Is she correct?
Show how you decide.

(c) Add the correct symbols to this diagram to show that line AB is parallel to line DC.



[1]

OCR November 09 November 2020- Morning (Calculator) Foundation Tier

11.

19 **(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 Tuesday 5 November 2019 – Morning (Calculator) Foundation Tier

12.

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

(a) ..... ° **[2]**

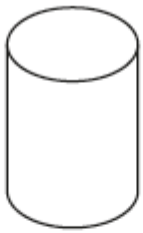
(b) Use your answer to part **(a)** to write down the size of the interior angle of a regular 12-sided polygon.

(b) ..... ° **[1]**

OCR Tuesday 6 November 2018 – Morning (Calculator) Foundation Tier

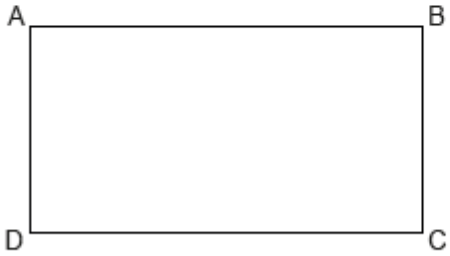
13.

2 **(a)** Write down the mathematical name of this solid.



(a) ..... **[1]**

(b) ABCD is a rectangle.



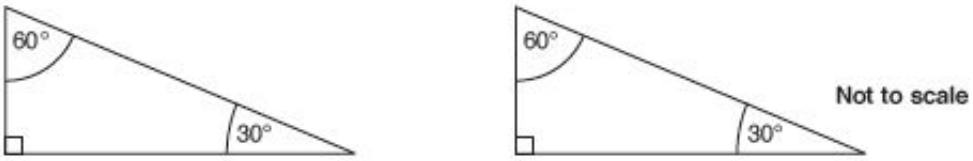
Not to scale

Add the correct mathematical symbol to the diagram to show that angle BCD is a right angle.
[1]

OCR Monday 12 November 2018 – Morning (Calculator) Foundation Tier

14.

10 Here are two identical tiles.



(a) Sketch two quadrilaterals that can be made by joining the tiles.
Write the mathematical name of each quadrilateral.

Quadrilateral 1: Quadrilateral 2:

Name: ..... Name: ..... **[4]**

(b) The two tiles can also be joined to make two triangles.

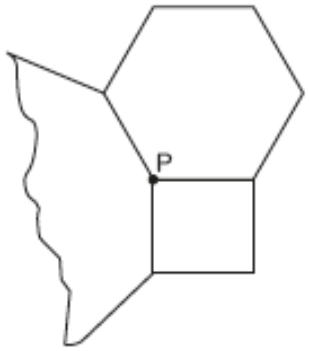
Work out the interior angles of each triangle.

(b) Triangle 1: .....° .....° .....°

Triangle 2: .....° .....° .....°
[2]

15.

18 The diagram shows a square, a regular hexagon and part of another regular polygon meeting at point P.



Not to scale

(a) Show that the size of one interior angle of a regular hexagon is 120°. **[2]**

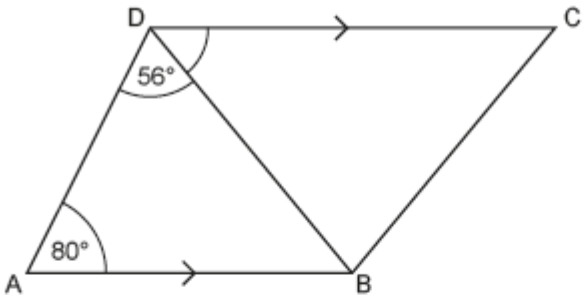
(b) Find the number of sides of the other regular polygon.

(b) ..... **[4]**

OCR Thursday 7 June 2018 – Morning (Non-Calculator) Foundation Tier

16.

7 In the diagram, AB is parallel to DC.



Not to scale

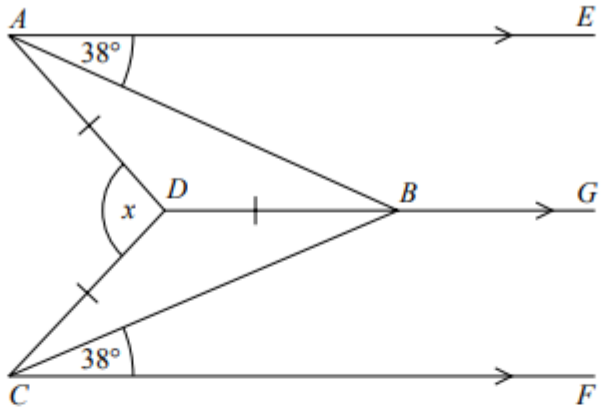
Work out angle BDC.
Give a reason for each angle you work out.

..... ° [4]

Pearson Edexcel – Sample Papers - Paper 1 (Non-Calculator) Foundation Tier

17.

23



AE, *DBG* and *CF* are parallel.
DA = *DB* = *DC*.
Angle *EAB* = angle *BCF* = 38°

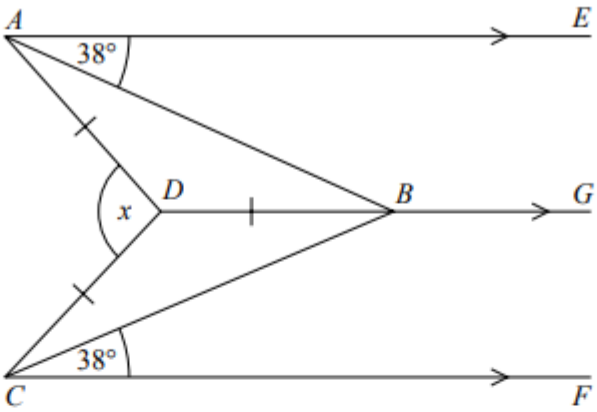
Work out the size of the angle marked *x*.
You must show your working.

°

(Total for Question 23 is 3 marks)

23		152	M1	Start to method *ABD* = 38° **and** *BAD* or *DBC* or *DCB* = 38°
			M1	*ADB* or *BDC* = 180 – 2 × 38 (=104)
			A1	for 152 with working

23



AE, *DBG* and *CF* are parallel.
DA = *DB* = *DC*.
Angle *EAB* = angle *BCF* = 38°

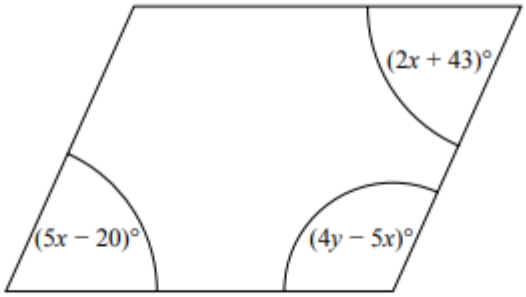
Work out the size of the angle marked *x*.
You must show your working.

.....°

(Total for Question 23 is 3 marks)

18.

28 Here is a parallelogram.



Work out the value of x and the value of y.

$x =$ .....

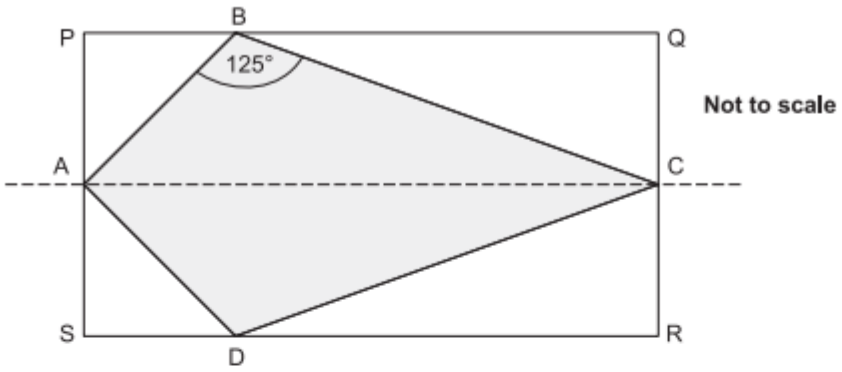
$y =$ .....

(Total for Question 28 is 5 marks)

OCR Sample Question Paper 3 – Morning/Afternoon (Calculator) Foundation Tier

19.

7 PQRS is a rectangle.
A, B, C and D are points on SP, PQ, QR and RS respectively.
AC is the line of symmetry for the diagram.



(a) Angle ABC = 125°.

Write down the size of angle ADC.

(a) Angle ADC = ... ° **[1]**

(b) AP is the same length as PB.

Work out the size of angle BCD.
Show your reasoning clearly.

(b) Angle BCD = ... ° **[4]**

AQA Thursday 6 June 2019 – Morning (Calculator) Foundation Tier

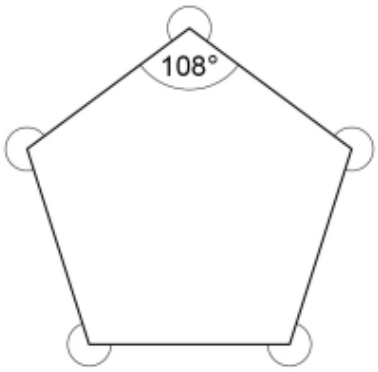
20.

8 (a) The interior angle of a regular pentagon is 108°

Work out the sum of the five **reflex** angles at the vertices of a regular pentagon.

[3 marks]

Not drawn accurately



Answer _____ degrees

Omar asks Harry,

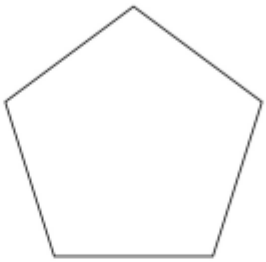
"How many lines of symmetry does a pentagon have?"

Harry assumes it is a regular pentagon.

His answer is 5.

8 (b) Draw the lines of symmetry on this regular pentagon.

[1 mark]



8 (c) Omar then says,

"What if the pentagon is **not** regular?"

For a pentagon that is **not** regular, what is true about the number of lines of symmetry?

Tick **one** box.

[1 mark]

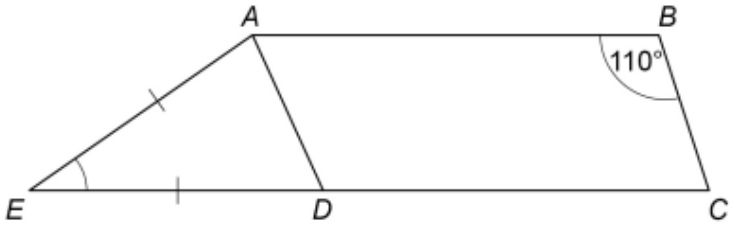
- ☐ There must be 0
- ☐ There could be 0 or 1
- ☐ There could be 0, 1 or 2
- ☐ There could be any number up to 5

AQA Tuesday 6 November 2018 – Morning (Non-Calculator) Foundation Tier

21.

15 Trapezium *ABCE* is made from parallelogram *ABCD* and isosceles triangle *ADE*.

AE = *DE*



Not drawn accurately

Work out the size of angle *AED*.

[3 marks]

Answer _____ degrees

AQA Tuesday 6 November 2018 – Morning (Non-Calculator) Foundation Tier

22.

28 The sum of the angles in any quadrilateral is 360°

For example, in a rectangle $4 \times 90° = 360°$

Zak writes,

$5 \times 90° = 450°$ so the sum of the angles in any pentagon must be 450°

Is he correct?

Tick a box.

☐ Yes ☐ No

Show working to support your answer.

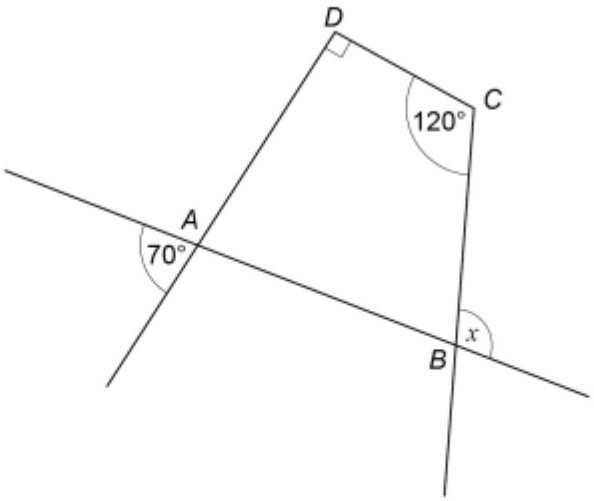
[2 marks]

AQA Thursday 2 November 2017 – Morning (Non-Calculator) Foundation Tier

23.

18 *ABCD* is a quadrilateral.

Sides are extended as shown.



Not drawn accurately

Show that $x = 100°$

[3 marks]

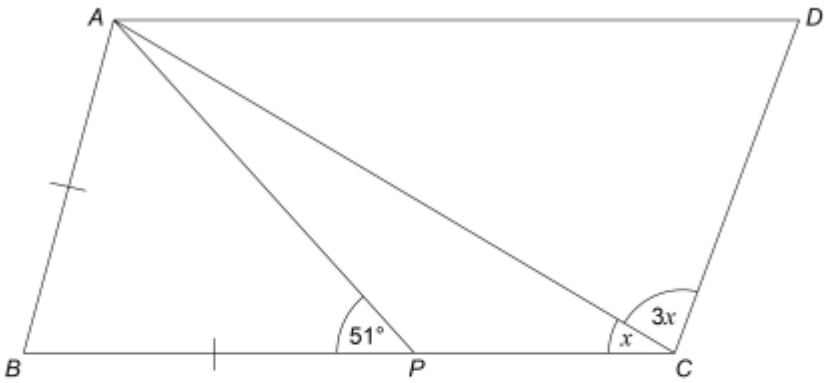
AQA Wednesday 8 November 2017 – Morning (Calculator) Foundation Tier

24.

22 *ABCD* is a parallelogram.

AB = *BP*

Not drawn accurately



Work out the size of angle x.

[4 marks]

Answer _____ degrees

AQA Thursday 25 May 2017– Morning (Non-Calculator) Foundation Tier

25.

23 A regular polygon has an exterior angle of 20°

Work out the number of sides of the polygon.

[2 marks]

Answer _____