

Q1. The diagram shows 3 sides of a regular polygon.

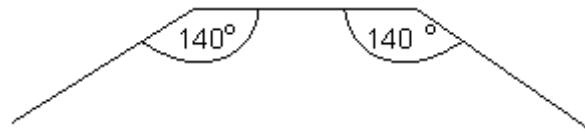


Diagram **NOT** accurately drawn

Each interior angle of the regular polygon is 140° .

Work out the number of sides of the regular polygon.

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(Total 3 marks)

Q2. The interior angle of a regular polygon is 160° .

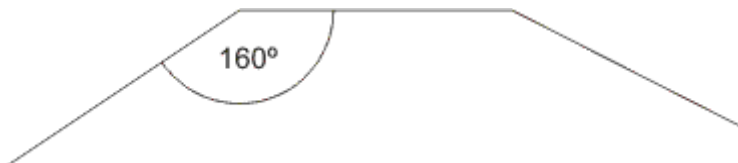


Diagram **NOT** accurately drawn

(i) Write down the size of an exterior angle of the polygon.

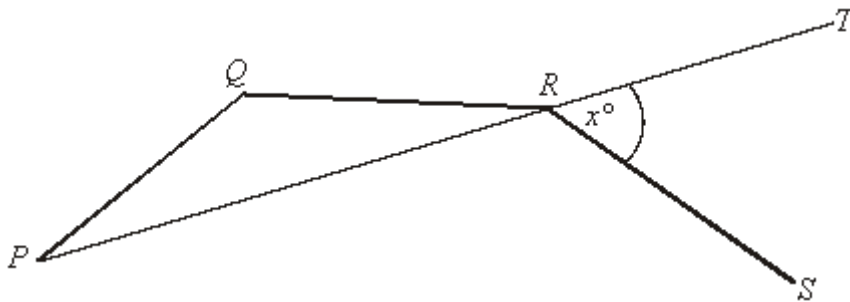
.....^o

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

.....
(Total 3 marks)

Q3.

Diagram **NOT**
accurately drawn



*PQ, QR and RS are 3 sides of a regular decagon.
PRT is a straight line.
Angle TRS = x°*

Work out the value of x

$x = \dots\dots\dots$

(Total 5 marks)

M1.

Working	Answer	Mark	Additional Guidance
180 – 140 (= 40) 360 ÷ “40”	9	3	M1 for 180 – 140 (= 40) M1 (dep) for 360 ÷ “40” A1 cao
Total for Question: 3 marks			

M2.

	Working	Answer	Mark	Additional Guidance
(i)	180° – 160°	20	1	B1 cao
(ii)	Exterior angles sum to 360° So 360 ÷ ‘20’ =	18	2	M1 for 360 ÷ “20” A1 cao
Total for Question: 3 marks				

M3.

Working	Answer	Mark	Additional Guidance
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Angle PQR = angle QRS =

$$\frac{(10 - 2) \times 180}{100} = 144^\circ$$

(interior angle of an nsided polygon)

Angle QPR = angle QRP =

$$\frac{180 - 144}{2}$$

= 18° (base angles of isos triangle)

Angle PRS = $144 - 18 = 126^\circ$

$$x = 180 - 126 = 54^\circ$$

(angles on a straight line)

54°

5

Total for Question: 5 marks

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Where candidates calculated the correct exterior angle, the correct answer usually followed although $360 \div 40 = 8$ was quite common. Some candidates added that the shape was a nonagon. Many candidates chose the less efficient and more error prone strategy of listing multiples of 140 to compare with a list of the multiples of 180. Some did not appreciate that only part of a regular polygon was shown and instead drew horizontal and/or vertical lines to close the shape and form a trapezium or hexagon.

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Many candidates calculated the external angle of the polygon correctly but some then divided 180 (instead of 360) by 20 to get 9. The most common incorrect answer for (a) was 200 where candidates calculated the reflex angle instead of the exterior angle. These candidates often started again to get $360 \div 20$ and the correct answer of 18. Some candidates scored 1 mark overall, generally for writing 40° in part (i) and then 9 in part (ii) where a follow through method mark could be awarded.