

## Angles in Polygons Past Paper Questions (MS)



Q1.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)(i)	40	B1	cao	Underlined words need to be shown.
(ii)	Reason	C1	Reason given <u>Angles</u> in a <u>quadrilateral</u> add up to 360. Accept "4-sided shape"	
(b)	Explanation	C1	Explanation  <b>Acceptable examples</b> 190 > 180 It does not add up to 180 80+60+50=190 Angles in a triangle add up to 180  <b>Not acceptable examples</b> One of the angles needs to be less You cannot draw this triangle	

Q2.

Question	Answer	Mark	Mark scheme	Additional guidance
	24	M1	for a complete method eg $360 \div 15 (=24)$	If extra steps are shown do not award this mark.
		A1	cao	

Q3.

Question	Working	Answer	Mark	Notes
		15	P1	for a process to find the interior or exterior angle of a regular 12 sided polygon e.g. $\frac{10 \times 180}{12} (= 150)$ or $\frac{360}{12} (= 30)$ , must be no contradictions
			P1	for process to find angle <i>STR</i> , eg $\frac{180 - "150"}{2}$ or $\frac{"30"}{2}$
			A1	cao



Q4.

	Working	Answer	Mark	Notes
(a)		Octagon	1	B1 cao
(b)		Pentagon drawn	1	B1 cao
(c)		121	3	M1 for attempted sum of given angles (=779), or subtraction of all given angles from a number > 900 M1 for 900 - '779' or subtraction of all given angles from 900 A1 cao

Q5.

Question	Answer	Mark	Mark scheme	Additional guidance
	132	M1	for finding an exterior angle eg $360 \div 6 (= 60)$ or $360 \div 5 (= 72)$ or an interior angle eg $180 \times 4 \div 6 (= 120)$ or $180 \times 3 \div 5 (= 108)$	Angles may be shown on the diagram Only award this mark for an angle that is not contradicted
		M1	for a complete method eg $360 - "120" - "108"$ or $"60" + "72"$	
		A1	cao	Answer only award no marks

Q6.

PAPER: 5MB3F_01				
Question	Working	Answer	Mark	Notes
		36	3	M1 for $3 \times 180 \div 5 (=108)$ or $540 \div 5 (=108)$ or for a correct calculation to find the exterior angle eg $360 \div 5$ or $180 - 360 \div 5 (=108)$ M1 (dep) for $"108" - 72$ or $180 - "360 \div 5" - 72$ or $"360 \div 5" + 2$ A1 cao OR M1 for $x + x + (72 + x) = 180$ oe or $5(x + 72) = 540$ oe M1 for $(x =) (180 - 72) \div 3$ oe or $(x =) 540 \div 5 - 72$ oe A1 cao

Q7.

Question	Working	Answer	Mark	Notes
	$180 - 140 (= 40)$ $360 \div "40"$	9	3	M1 for $180 - 140 (= 40)$ M1 (dep) for $360 \div "40"$ A1 cao



Q8.

PAPER: 5MB2H 01				
Question	Working	Answer	Mark	Notes
		126	3	M1 for (angle $BCD = \frac{180 \times (10 - 2)}{10}$ (= 144) M1 (dep) for (angle $DCX = 360 - '144' - 90$ oe A1 cao  OR M1 for (exterior angle =) $\frac{360}{10}$ (= 36) M1 (dep) for (angle $DCX = 90 + '36'$ oe, eg $180 - (90 - 36)$ A1 cao

Q9.

Question	Working	Answer	Mark	Notes
(i)	$180^\circ - 160^\circ =$	20	3	B1 cao
(ii)	Exterior angles sum to $360^\circ$ So $360 \div '20' =$	18		M1 for $360 \div '20'$ A1 cao

Q10.

Question	Working	Answer	Mark	Notes
	$360 \div 10$ $36 \div 2$	$18^\circ$	4	M1 for correct method to find the size of an exterior angle eg $360 \div 10$ A1 for 36 M1 for ' $36' \div 2$ or $(180 - (180 - 36)) \div 2$ A1 cao OR M1 for correct method to find the size of an interior angle eg $(180 \times 8) \div 10$ A1 144 M1 $(180 - '144') \div 2$ A1 cao

Q11.

Question	Working	Answer	Mark	Notes
		100	4	M1 for $360 \div 9 (= 40)$ or $(9 - 2) \times 180 (= 1260)$ M1 (dep) for $180 - '40'$ or $'1260' \div 9 (= 140)$ oe M1 (dep M2) for a complete method to find the required angle, eg $'140' - (360 - '140' - '140') \div 2$ or $('140' \div 7) \times 5$ A1 for 100 supported by working



Q12.

PAPER: 1MA0_1H				
Question	Working	Answer	Mark	Notes
		25	4	<p>M1 for complete method to work out interior angle of a regular octagon <b>or</b> <math>135^\circ</math> identified as an interior angle of the octagon  M1 for complete method to work out angle <math>KFG</math> or angle <math>KFG</math> identified as <math>110^\circ</math>  M1 (dep on M2) for complete method to work out angle <math>KFE</math>, eg "<math>135^\circ - 110^\circ</math>" or <math>(8 \times 135^\circ - 4 \times 135^\circ - 4 \times 110^\circ) \div 4</math> or <math>(3 \times 180 - 2 \times 135^\circ - 2 \times 110^\circ) \div 2</math>  A1 for 25 with supporting working</p> <p><b>OR</b></p> <p>M1 for complete method to work out the exterior angle of a regular octagon <b>or</b> <math>45^\circ</math> identified as an exterior angle of the octagon  M1 for complete method to work out angle <math>KFG</math> or angle <math>KFG</math> identified as <math>110^\circ</math>  M1 (dep on M2) for complete method to work out angle <math>KFE</math>, eg <math>180 - 45^\circ - 110^\circ</math>  A1 for 25 with supporting working</p> <p><b>OR</b></p> <p>M1 for complete method to work out the exterior angle of a regular octagon <b>or</b> <math>45^\circ</math> identified as an exterior angle of the octagon  M1 for complete method to work out angle <math>JKF</math> or angle <math>JKF</math> identified as <math>70^\circ</math>  M1 (dep on M2) for complete method to work out angle <math>KFE</math>, eg "<math>70^\circ - 45^\circ</math>"  A1 for 25 with supporting working</p>

Q13.

Question	Working	Answer	Mark	Notes
		126	4	<p>M1 for method to find exterior or interior angle of octagon  M1 for method to find exterior or interior angle of pentagon  M1 for complete method  A1 cao</p>

Q14.

PAPER: 1MA0_1H				
Question	Working	Answer	Mark	Notes
		18	4	<p>M1 for a method to find the exterior angle of a pentagon eg. <math>360 \div 5 (=72)</math>  or the interior angle of a pentagon, eg. <math>180 - 360 \div 5 (= 108)</math>  A1 for 72 or 108  M1 (dep M1) for a fully complete method to find the required angle, <math>DCF</math>  A1 for 18 or ft their interior or exterior angle</p>

Q15.



Question	Working	Answer	Notes
		105	P1 for process to find the exterior angle or interior angle of a hexagon or octagon P1 for process to find the both exterior angles or both interior angles A1 for 105 from correct working