Mark scheme

Angles in polygons

Mathematics 0580 · Questions from Paper 1 and Paper 2

Total marks

28

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
1	2	2	2	2	3	3	3	5	5	**28**

Question 1 **[1]**

1	18	**1**	

Question 2 **[2]**

2	24 nfww	**2**	**M1** for 360 ÷ 15 If zero scored, **SC1** for answer of 156

Question 3 **[2]**

3	135	**2**	**M1** for $180 - (360 \div 8)$ oe or $\frac{(8-2) \times 180}{8}$ oe

Question 4 **[2]**

4	18	**2**	**M1** for $\frac{360}{180-160}$ or for $\frac{180(n-2)}{n} = 160$

Question 5 **[2]**

5	51	**2**	**M1** for $360 - (56 + 104 + 71)$

STEM Exam Builder

Question 6 **[3]**

6	162	**3**	**M2** for $\left(\frac{(5-2)\times 180}{4+5+5+7+9}\right) \times k$ where $k = 1, 4, 5, 7, 9$ or **M1** for $180n \div (4 + 5 + 5 + 7 + 9)$ where $n \geqslant 2$ or for $(5 - 2) \times 180$ oe

Question 7 **[3]**

7	165	**3**	**M2** for $\frac{360}{8} + \frac{360}{3}$ oe or **M1** for **[**exterior angle of octagon =] $\frac{360}{8}$ or [exterior angle of triangle =] $\frac{360}{3}$ oe

Question 8 **[3]**

8	15	**3**	**B2** for $[x =] 24$ OR **M1** for $x + x + 132 = 180$ oe soi **M1** for $\frac{360}{\textit{their } x}$ oe provided this gives an integer answer

STEM | Exam Builder

Question 9 **[5]**

9 (a)	Exterior angle method [Ext angle =] 360 ÷ 5 5 × (180 – 72) = 540	**M1** **E1dep**	
	Formula method $(n-2) \times 180$ or $\frac{(n-2)\times 180}{n}$ $(5-2) \times 180 = 540$ **or** $\frac{(5-2)\times 180}{5} = 108$ **and** 5 × 108 = 540	**M1** **E1dep**	
	Triangle methods Explanation or sketch to split pentagon into 3 or 5 triangles. 3 × 180 = 540 or 5 × 180 – 360 = 540	**M1** **E1dep**	
(b)	[x =] 104 [y =] 135	**3ft**	B1 [x =] 104 M1 for 540 – (90 + 76 + their x)

Question 10 **[5]**

10	Finds number of sides 6 and 12 with appropriate supporting working for each value.	**5**	**B2** for 120 and 150 or **M1** for 360 ÷ (3 + 4 + 5) × k oe where k = 1, 3, 4 or 5 **M1** for $\frac{360}{180-their120}$ or $\frac{180(n-2)}{n} = their120$ oe **M1** for $\frac{360}{180-their150}$ or $\frac{180(n-2)}{n} = their150$ oe

STEM Exam Builder