

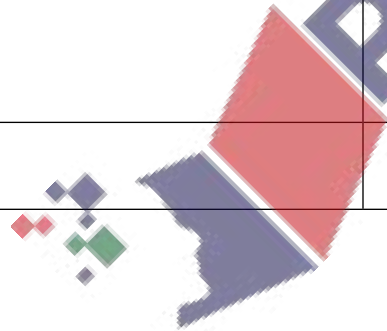
Topical Worksheets for Cambridge IGCSE™  
Mathematics (0580)

**Geometry**

**Mark Scheme**

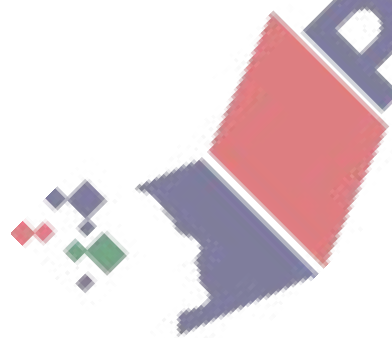
1<sup>st</sup> edition, for examination until 2025

Question	Answer	Marks	AO Element	Notes	Guidance
1	Acute	1			
2(a)	Chord	1			
2(b)	16	1			
3	7	3		M2 for $166 + 2x = 180$ or better or M1 for $97 - 3x + 69 + 5x = 180$ oe	
4	109	3		M1 for $(180 - 38) \div 2$ oe M1 for $180 - \text{their } ACB$	
5	Three correct lines on first shape AND One correct line on second shape	3		B2 for three correct lines on first shape or B1 for one or more correct lines and no wrong lines B1 for one correct line on second shape	
6	2	1			



Question	Answer	Marks	AO Element	Notes	Guidance
7	<b>M1</b> for angle $ACB = 65^\circ$ or angle $RPQ = 37^\circ$ <b>A1</b> for 2 pairs of equal angles oe	<b>2</b>			
8(a)	$2x - 3$	<b>2</b>		<b>B1</b> for $kx - 3$ or $2x + k$ $k \neq -3$	
8(b)	Ruled line perpendicular to $L$	<b>1</b>			
9	140	<b>2</b>		<b>M1</b> for $360 \div 9$	
10	Correct shape drawn	<b>1</b>			
11	Correct shape drawn	<b>2</b>		<b>M1</b> for 3 sides correctly reflected or 4 correct vertices	
12	Kite or isosceles trapezium	<b>1</b>			
13	2	<b>1</b>			
14	Circle with 3.8 cm radius drawn	<b>2</b>		<b>M1</b> for $11.4 \div 1.5$ or $5.7 \div 1.5$	
15(a)	72 Corresponding angles	<b>2</b>		<b>B1</b> for each	

Question	Answer	Marks	AO Element	Notes	Guidance
15(b)	65 Angles [at a point] sum [to] 360 oe	2		<b>B1</b> for each	
16	116	2		<b>M1</b> for angle $ACB = 32$ soi	
17	Complete explanation with geometrical reasons	3		<b>B1</b> for $RQP = x^\circ$ $QR$ bisects angle $PQB$ <b>B1</b> for $RPQ = x^\circ$ alternate segment theorem <b>B1</b> for triangle $PQR$ has two equal angles both less than 60 (so can't be equilateral) so must be isosceles	



Question	Answer	Marks	AO Element	Notes	Guidance
18	16.6 or 16.64...	5		<p><b>M2</b> for  <math>21 \times \frac{18}{13.5} = [AC]</math> oe                      or <b>M1</b> for scale factor  <math>\frac{13.5}{18}</math> or <math>\frac{18}{13.5}</math> oe soi                      Then Pythagoras                      method:                      and <b>M2</b> for  <math>\sqrt{28^2 + 18^2} [\div 2]</math>                      or  <math>\sqrt{(their\ AC)^2 + 18^2} [\div 2]</math></p> <p>or <b>M1</b> for  <math>AD^2 = 28^2 + 18^2</math>                      or  <math>AD^2 = (their\ AC)^2 + 18^2</math></p> <p>OR                      alternative trigonometry                      method e.g.  <b>M1</b> for <math>\tan E = \frac{21}{13.5}</math>                      and <b>M1</b> for  <math>AD = \frac{18}{\cos\ their\ 57.3}</math></p>	

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19	[x =] 55 [y = ] 24	2		<b>B1</b> for each	
20(a)	49	1			
20(b)	98	1		<b>FT</b> 2 × <i>their</i> (a)	
20(c)	20	1			
20(d)	70	1		<b>FT</b> 90 – <i>their</i> (c)	
21	25	2		<b>B1</b> for 130 seen or <b>M1</b> for $50 \div 2$	
22	5	3		<b>M2</b> for $8 \times \sqrt{\frac{52.5}{134.4}}$ oe or <b>M1</b> for $\sqrt{\frac{52.5}{134.4}}$ or $\sqrt{\frac{134.4}{52.5}}$ oe	
23(a)	Equilateral	1			
23(b)(i)	4.1 to 4.5	1			
23(b)(ii)	10.25 to 11.25	2		<b>M1</b> for $0.5 \times 5 \times$ <i>their</i> (b)(i)	

Question	Answer	Marks	AO Element	Notes	Guidance
23(b)(iii)	61.5 to 67.5	2		<b>FT</b> <i>their</i> <b>(b)(ii)</b> <b>B1</b> for 6 seen	
24(a)	Correct position of town <i>B</i>	2		<b>B1</b> for correct bearing <b>B1</b> for correct distance	
24(b)(i)	Correct triangle drawn	3		<b>B2</b> for correct triangle with no or wrong arcs or correct position of <i>C</i> with arcs (no triangle) or <b>B1</b> for one line correct length drawn or 7 and 5 seen	
24(b)(ii)	38 to 42	1		<b>FT</b> <i>their</i> measured angle at <i>C</i>	
25(a)	Tangent	1			
25(b)(i)	$22\pi$ final answer	2		<b>M1</b> for $2 \times 11 \times \pi$	
25(b)(ii)	40	2		<b>B1</b> for angle $OBC = 40^\circ$ or angle $BOG = 140^\circ$	
25(b)(iii)	7.68 or 7.679 to 7.680...	2		<b>FT</b> <i>their</i> <b>(b)(ii)</b> and <b>(b)(i)</b>  <b>M1</b> for $\frac{\textit{their} \text{ (b) (ii)}}{360} \times \textit{their} \text{ (b) (i)}$	

Question	Answer	Marks	AO Element	Notes	Guidance
25(c)(i)	Angle [between] tangent [and] radius	1			
25(c)(ii)	<p><b>B1</b> for <math>180 - 140</math> or <math>90 -</math> <i>their</i></p> <p><b>(b)(ii)</b></p> <p><b>M1</b> for <math>\tan(180 - 140) = \frac{11}{BC}</math></p> <p>oe</p> <p><b>A1</b> for <math>[BC =] 13.109[...]</math></p>	3			
25(c)(iii)	6.11 or 6.112 to 6.114	3		<p><b>M1</b> for <math>[OB^2 =] 13.11^2 + 11^2</math></p> <p><b>A1</b> for 17.1 or 17.11 or 17.112 to 17.114</p> <p>OR</p> <p><b>M1</b> for <math>\frac{11}{\sin 40}</math> oe</p> <p><b>A1</b> for 17.1 or 17.11... or 17.112 to 17.113</p>	
26(a)	Kite	1			
26(b)(i)	<p>Translation</p> <p><math>\begin{pmatrix} 4 \\ 9 \end{pmatrix}</math></p>	2		<b>B1</b> for each	



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26(b)(ii)	Reflection $x = 0.5$ oe	2		<b>B1</b> for each	
26(b)(iii)	Rotation 90° clockwise oe [centre] (0, 0) oe	3		<b>B1</b> for each	
26(c)(i)	(-5, -6)	1			
26(c)(ii)	Image at (-5, 0), (-2, 3), (7, 0), (-2, -3)	2		<b>B1</b> for correct size, wrong position or correct shape with incorrect scale factor	
27	55	2		<b>M1</b> for 180 – 70	
28(a)	Cuboid	1			
28(b)	10	2		<b>M1</b> for $5 \times 2$ [ $\times 1$ ]	
29(a)	(-1, -2)	1			
29(b)	$\begin{pmatrix} 6 \\ 0 \end{pmatrix}$	1			
29(c)	C marked at (3, 3)	1			

Question	Answer	Marks	AO Element	Notes	Guidance
29(d)(i)	$\begin{pmatrix} 4 \\ 5 \end{pmatrix}$	1		FT <i>their</i> $(\mathbf{b}) + \begin{pmatrix} -2 \\ 5 \end{pmatrix}$	
29(d)(ii)	$\overrightarrow{AC}$	1			
29(e)(i)	Correct parallelogram drawn	1		FT <i>their</i> $(\mathbf{c})$ provided $ABCD$ forms a parallelogram	
29(e)(ii)	30 cm <sup>2</sup>	2		FT the area of <i>their</i> $ABCD$ provided it is a parallelogram. B1 for each	
30	$[a =] 32$ $[b =] 98$ $[c =] 82$	3		B1 for each	
31	Correct ruled net of cuboid	3		B2 for 3 or 4 further correct faces drawn in the correct places or B1 for 1 or 2 further correct faces drawn in the correct places	
32(a)	Hexagon	1			
32(b)	6	1			

Question	Answer	Marks	AO Element	Notes	Guidance
33(a)	24	3		<b>M2</b> for $\frac{180}{2+13} \times k$ where $k = 1, 2$ or $13$ or <b>B1</b> for $e + i = 180$ soi	
33(b)	15	1		<b>FT</b> if $\frac{360}{\text{their (b)(i)}}$ is an integer	
34	Correct ruled triangle with arcs	2		<b>M1</b> for correct triangle without arcs or for correct arcs and no lines	
35	85	2		<b>B1</b> for either angle in alt segment = 58	
36	72	2		<b>B1</b> for either angle at $J$ or $H = 108$ or angle at $F = 72$	
37(a)	36	2		<b>M1</b> for $\left(\frac{8}{12}\right)^2$ or $\left(\frac{12}{8}\right)^2$ oe	

Question	Answer	Marks	AO Element	Notes	Guidance
37(b)	30	3		<b>M2</b> for $320 \div 16 \times \frac{12}{8}$ oe or <b>M1</b> for $320 \div 16$	
38	12	2		<b>M1</b> for $150 = \frac{(n-2) \times 180}{n}$ or $\frac{360}{180-150}$ oe	
39	<b>B1</b> for $OA = OB = OC = OD$ Radii <b>B1</b> for $AB = CD$ chords equidistant from centre are equal <b>B1</b> for SSS implies congruent	3			
40	45	2		<b>B1</b> for angles at $M$ or $K$ $= 45$ or angle at $L = 90$	
					[Total: 132]

