

Mark scheme

Question			Answer/Indicative content	Marks	Guidance
1			Accurate ruled angle bisector of D reaching AB with two pairs of correct arcs Correct area shaded	2 1	B1 for accurate ruled angle bisector Dep on at least B1 Tolerance on angle $\pm 2^\circ$ Allow correct alternative method using 2 arcs and cross drawn <u>Examiner's Comments</u> Many candidates did not seem to know what was expected for this question and did not attempt it. Of those who made an attempt, many simply drew a vertical line a distance from AD.
			Total	3	
2	a	i	A right angle	1	May be indicated in list <u>Examiner's Comments</u> Many correct answers were seen. The most common incorrect answer was 'An acute angle', possibly from looking at 30° and not B.
		ii	60 [Angles in a] triangle sum to 180 oe	1 1	Must refer to triangle Do not accept just a calculation

					<u>Examiner's Comments</u> Most were able to calculate the missing angle of 60° here but giving a reason for their answer was more challenging. Some didn't refer to 'triangle' and just stated things such as 'it adds to 180', while others did not give a geometrical justification.
	b		160 and 240 do not make 360 oe or sum correctly connecting 160, 240 and 400 and reference to 360 oe or sum correctly connecting 160, 200 and 360 or angles around a point add to 360 not 400	1	Condone incorrect geometric reasons Must include a reference to 360 eg $160 + 240 = 400$ is insufficient Angles may be marked on diagram For additional information refer to '2024 November, J560/01, Mark Scheme Appendix: item1' within downloadable extra resource materials. <u>Examiner's Comments</u> Many candidates gained this mark. Some just stated 'angles round a point add to 360' without reference to 160° or any further explanation, which was insufficient for the mark.
			Total	4	
3			<i>BPC</i> or <i>CPB</i> and [vertically] opposite <i>DAP</i> or <i>PAD</i> <i>CBP</i> or <i>PBC</i> alternate	B2 B1 B1dep	B1 for <i>BPC</i> or <i>CPB</i> Must have angle and reason Must use 3-letter notation Condone

			AAA oe		Dependent on previous B2 and B1 • <i>A</i> and <i>B</i> if clear for e.g. <i>A</i> for <i>PAD</i> and <i>B</i> for <i>CBP</i> • Changed order e.g. <i>CBP</i> and <i>PAD</i> • Use of <i>B</i> or <i>C</i> for <i>P</i> e.g. <i>DAB</i> for <i>DAP</i> For reason, condone poor spelling (alternative) and accept “third angle in triangle” oe Accept completely correct statements e.g. “All corresponding angles equal” but not “All angles equal” or “They have the same angles”															
<table><tr><th>Reason</th><th>Mark</th><th>Reason</th></tr><tr><td>Corresponding [pairs of] angles are equal</td><td>1</td><td></td></tr><tr><td>Matching angles in the triangles are equal</td><td>1</td><td></td></tr><tr><td>They have the same angles</td><td>0</td><td>Not specific enough</td></tr><tr><td>All angles equal</td><td>0</td><td>Not true</td></tr></table>						Reason	Mark	Reason	Corresponding [pairs of] angles are equal	1		Matching angles in the triangles are equal	1		They have the same angles	0	Not specific enough	All angles equal	0	Not true
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					<u>Examiner's Comments</u> Very few correct answers were seen to this question. Some candidates correctly identified BPC (or CPB) in the first row and a few of those gave the correct reason '[vertically] opposite'; repeating 'alternate' was however common. There was no mark for the reason if the angles were incorrectly identified. Most candidates did not seem secure in their knowledge of alternate, opposite, corresponding, and co-interior angles (often using words such as parallel, adjacent, acute, and congruent instead). A very small number used two letters to try to describe an angle and others gave three letters that actually referred to straight line, like CPD. Many candidates were awarded 1 mark (the B1 for getting the first angle correct), but quite a few received 0 marks. A very few candidates got the first 3 marks but were then not able to justify the decision concisely. Imprecise answers such as 'All the angles are the same' or 'It's an enlargement' were often given. Many seemed unprepared for a geometric 'proof' such as this and the answer space was often left blank.  Assessment for learning Candidates need to be familiar with simple proofs and the use of geometric terms to justify decisions.
			Total	4	
4	a		prism	1	Mark answer line; If nothing

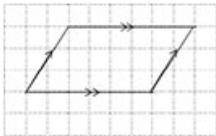
					on the answer line, may be indicated in the list Accept other correct words e.g “triangular prism” <u>Examiner’s Comments</u> This question was almost always correctly answered. A very few candidates chose ‘cone’ or ‘cylinder’.
	b	i	12	1	<u>Examiner’s Comments</u> A fairly significant number of candidates did not answer this correctly. 8 was a common incorrect answer, perhaps through confusing ‘edges’ with ‘faces’, but 9, 10 and 11 were also seen.
		ii	350	2	M1 for $7 \times 10 \times 5$ oe Accept e.g. 70×5 <u>Examiner’s Comments</u> Most candidates showed working for this question. The best candidates showed the whole calculation and gave the correct answer. Some did it in stages. Common errors were to instead calculate the cuboid’s surface area, or to sum all the lengths of edges around the cuboid (presumably from confusion with perimeter), both of which involved lengthy calculations. 70 and 35 (from the area of single faces) as well as 22 were also common wrong answers.

					Some candidates found the volume of 350 and then divided by 2.
			Total	4	
5			Correct ruled line with two pairs of correct arcs	2	B1 for correct ruled line with no or wrong arcs, or correct intersecting arcs but no line or correct dashed/dotted line with correct arcs Use protractor to measure, allow 88°-92° Use Ruler to measure, allow 35–39mm from A or B Arcs may be two continuous arcs centred at A and B with two intersections <u>Examiner's Comments</u> A large proportion of candidates did not attempt this question, but those that did commonly had a correct approach. As in previous series, some candidates used equipment inappropriately (for example, not tightening their compasses so the arcs from each end didn't have the same radius) and there were some responses with a number of attempts seen. Some had the correct approach, but their arcs either did not cross or just touched at the line's mid-point. Some drew the correct arcs, but then didn't draw a perpendicular bisector (these were given B1). Almost no candidates drew a correct perpendicular bisector without arcs (but those that did were given B1 for it).
			Total	2	
6			Cuboid Cone	3	

			[Triangular] Prism		Mark intention, allow name to be in any 'box' associated with that line B1 for each For cuboid accept 'Rectangular Prism' For Cone accept '<u>Circular based pyramid</u>' <u>Examiner's Comments</u> Candidates found identifying these solids difficult. Often they just named the 2D shape seen in the front elevation. Some described the triangle seen in the front elevations, e.g. isosceles, equilateral, scalene or right-angled triangle. Some responses appeared to be naming shapes/solids at random. The cone was the most successfully identified, followed by the cuboid. There were also a number of candidates who wrote 'circular based pyramid' for the cone and 'rectangular prism' for the cuboid (both of which were accepted). A number of candidates had incorrect spelling, but this was not penalised. Identifying the [triangular] prism was the greater challenge. Common incorrect responses included trapezium and pyramid.
			Total	3	
7			6	1	<u>Examiner's Comments</u> Many candidates were able to answer this question correctly. Common incorrect responses were 3 (from

					halving the radius) or 9 (from squaring it). Some candidates tried to use one of the formulae given on the formulae sheet to complete this question, but those that did often gave an incorrect response.
			Total	1	
8			146 with correct working	5	M2 for $3x + 36 = 180$ oe or M1 for $(x - 14) + (2x + 50) = 180$ oe AND A1 for $[x =] 48$ M1 for $2 \times \text{their } x + 50$ If 0 or 1 scored, instead award SC2 for 146 with no or insufficient working If 0 scored, instead award SC1 for $[x =] 48$ or $y = 2x + 50$ “Correct working” requires evidence of at least M2 or M1M1 <u>Trials:</u> Correct answer from trials scores 5 Allow correct substitution into $(x - 14) + (2x + 50)$ to imply M1 if 180 also stated Dep on at least M1 <i>their</i> $x < 65$ SC marks may be seen on diagram <u>Examiner’s Comments</u> Although there were a few fully correct solutions, many candidates did not see the link between $2x + 50$, $x - 14$ and 180 and so struggled to form the initial equation. Those who managed to set up the equation often went on to solve it correctly and find x as 48°, but then frequently did not know how to proceed.

					Some candidates were given SC1 for $y = 2x + 50$.
			Total	5	
9	a		133	1	Allow 131 to 135 <u>Examiner's Comments</u> About half of the candidates could measure the 133° angle to within the required 2° tolerance. There were only a few responses of about 47°, through the wrong protractor scale being used. There may have been a significant number of candidates that did not have access to a protractor, based on the number of responses that appeared to be guesses (including some greater than 180° and others less than 90°).
	b		2 of the angles are equal oe	1	Must refer to angles not sides, statements must not be contradicted Response Mark Two angles are identical and one is different. 1 Only two of the angles are the same so it cannot be equilateral. 1 Because two of the angles being the same means it is equal lines. 1 Two angles of an isosceles have to be the same. 1 27° and 27° are equal meaning it has two equal sides. 1 Only 2 numbers are the same and it's not all equal 1 bod Because others don't have same two angles 1 bod Because others don't have two angles the same/2 same angles 1 bod Base angles in an isosceles triangle are always equal. 1 bod

					Because isosceles triangles have equal sides and they are 27°. 0 Because 2 sides of the triangle are the same which is 27° and the last side is different. 0 One angle is bigger than the others 0 Because they're both 27 degree angles' 0 2 sides are the same 0 Both of isosceles have the same number 0 <u>Examiner's Comments</u> The question gave angles, but it was fairly evident from the large number of comments referring to two equal sides that many candidates did not appreciate that an isosceles triangle also has two equal angles. Some candidates stated that 'the angles sum to 180', which is true of all triangles.
c	i		1 1 dep	Correct parallelogram drawn dep on parallelogram drawn Accept other, complete, standard notations that indicate a parallelogram eg two pairs of opposite sides have equal length or two pairs of opposite angles are equal or any combination of these properties that define a parallelogram Accept reasonable freehand, tolerance $\pm 2\text{mm}$ by eye Mark intent Arrows must be correct single/double and pointing in correct direction <u>Examiner's Comments</u>	

					Many were able to correctly complete the parallelogram with the correct notation. The most common error was to draw a trapezium.
		ii	18 nfww	2	FT <i>their</i> parallelogram M1 for <i>their</i> length $\times$ <i>their</i> perpendicular height oe e.g. $6 + 3 + 6 + 3 = 18$ scores 0 M1 and 2 marks are dependent on a parallelogram being drawn in (i) Must be in cm^2 If not 6 and 3 <i>their</i> dimensions need to be verifiable eg shown on the diagram eg M0 for $\sqrt{13}$ or 3.6... etc as <i>their</i> perpendicular height oe includes two triangles + the 4×3 rectangle or the 8×3 rectangle – two triangles Need to be certain that 3 is slant height to withhold the marks <u>Examiner's Comments</u> To be given marks here, candidates needed to have drawn a parallelogram in (c)(i). Use of a slant height for the perpendicular height was a common error. Some candidates found their shape's perimeter rather than area.
			Total	6	
10	a		Pyramid	1	If answer line blank check

					the box for indication <u>Examiner's Comments</u> Many candidates gave the correct response. The most common incorrect response was prism.
	b		Pentagon	1	<u>Examiner's Comments</u> Although many gave the correct response, the incorrect response of hexagon was often seen.
	c		Sketch of a rectangle	1	Correct by eye Condone diagonals drawn Must be completely on grid <u>Examiner's Comments</u> This question was not well answered. Several candidates did not draw a quadrilateral. Of those who did, squares and parallelograms were the most common responses (neither of which is correct).
			Total	3	
11	a	i	[Two equal] radii oe	1	Must refer to radius <u>Examiner's Comments</u> Almost no candidates scored this

					mark. Most focused on the triangles and cited isosceles triangles as the reason, or that the triangles were the same. Few stated that the lines were radii of the circle.
		ii	Isosceles	1	Condone poor spelling <u>Examiner's Comments</u> Most candidates responded with isosceles, although frequently spelt incorrectly. Equilateral was a common incorrect response.
	b		2880	3	For M2 accept 16×180 or 18×160 or $\left(180 - \frac{360}{18}\right) \times 18$ oe or $(180 - 20) \times \frac{360}{20}$ 80 or 160 not from $20 + 20 + 20 + \dots$ 80 or 160 may be seen in correct place on diagram M2 for $\left(\frac{360}{20} - 2\right) \times 180$ oe or $\frac{360}{20} \times (80 + 80)$ oe M1 for $\frac{360}{20}$ soi 18 or 80 or 160 <u>Examiner's Comments</u> Very few candidates reached a correct answer. A few candidates gained a mark for finding and using the other angles of a triangle. Very few spotted that $360 \div 20$ would give the number of triangles. Most attempts involved repeatedly adding 20° and some assumed the polygon was a pentagon, presumably

					taking only the given solid lines to define it.
			Total	5	
12			[No] and $10 + 10 = 20$ or $20 \div 2 = 10$ and recognition that height is 0 or not included oe	2	B1 for each For further detail, please refer to 2023 November, J560/03, Mark Scheme Appendix. Accept $10 \times 2 = 20$ (unless clearly implying area) Accept e.g. "adding lengths makes 20" for $10 + 10 = 20$ B0 B1 and B1 B0 are possible <u>Examiner's Comments</u> Fewer candidates were successful here, however some good responses were seen with $10 + 10 = 20$ followed by recognition that there was nothing left for the height/width. Some stated that he was correct as $2 \times 10 = 20$, indicating confusion of perimeter with area (as commonly seen in the first part). Some responded that there was a missing length but offered no calculation to support their assertion. Some candidates made the rectangle into a square with side length 5 cm, misinterpreting the question.
			Total	2	
13	a		six correct lines of symmetry only	3	

					B1 for each correct letter Mark intention not cutting parallel edges or jaws of C Lines solid, dashed, freehand may be short T - 1 line, C - 1 line, X - 4 lines <u>Examiner's Comments</u> Many candidates scored one or two marks on this question. T and C were often correct, although some very short lines were given (these were condoned). Many candidates missed that the X has four lines of symmetry. Freehand lines were condoned in this question, which was fortunate for many candidates. Common errors were to draw a horizontal line on the T and a vertical line on the C.
	b		4	1	Accept "four" Ignore other comments that don't invalidate such as "clockwise" <u>Examiner's Comments</u> Around half the candidates gave the right response. Common errors were 2 or 90°.
			Total	4	
14	a	i	x = 59 and <u>alternate angles</u> [are equal]	2	

					B1 for each Alternative Explanation: <u>Co-interior/Allied Angles</u> [add to 180] and <u>Angles on a Straight Line</u> =180 <u>Corresponding Angles</u> [are equal] and <u>Angles on a Straight Line</u> =180 <u>Examiner's Comments</u> Candidates showed a lack of knowledge of angles within parallel lines. Very few candidates were able to give the correct value of x. The reasons given were frequently incorrect and often were not a valid parallel line angle rule, e.g. 'opposite angles'. Some candidates stated a correct angle reason here, however struggled with the subsequent parts of the question.
		ii	y = 42 and <u>corresponding angles</u> [are equal]	2	B1 for each Alternative Explanation: <u>Co-interior/Allied Angles</u> [add to 180] and <u>Angles on a Straight Line</u> =180 <u>Alternate Angles</u> [are equal] and <u>Angles on a Straight Line</u> =180

					<u>Examiner's Comments</u> Very few candidates gave the correct value of y. As in (a) (i), reasons given were often incorrect or were not valid rules. Some candidates had reversed the answers for part (a) and part (b). There was little evidence of candidates attempting to break down a complex diagram using equipment such as highlighters to help them visually access the diagram.  Assessment for learning Use highlighters to show alternate/allied (co-interior)/corresponding angles on a diagram. This should help candidates to approach more complex diagrams visually.
	b		101	2	B1 for 79 or M1 for $59 + 42$ oe 79 could be seen in a correct position of the diagram but not on answer line. <u>Examiner's Comments</u> Few candidates were able to access this question. Successful responses generally identified the top angle of the lower triangle to be 79° and then used a number of stages to correctly get $z = 101$. Many started by correctly adding $59 + 42$, but it was rare for candidates to identify that this gave them the value of z (using the exterior angle of a triangle rule). Many of these instead calculated $180 - 101$ and the resulting value of 79° was a common wrong response. Candidates who had an incorrect value for angle x often

					attempted to find the angle from here. Many candidates who had struggled with parts (a) (i) and (ii) simply skipped this part.  Assessment for learning Re-drawing the relevant parts of the diagram in the working space could have helped break down the question into a simpler problem, involving angles in a triangle and angles on a straight line.
			Total	6	
15			106	2	M1 for $360 - (90 + 39 + 125)$ oe <u>Examiner's Comments</u> Many correct responses were given by candidates. The most common error was to omit the angle of 90° from the subtraction.
			Total	2	
16	a		B	1	Accept any clear indication e.g. the cone or the second one May be on diagram <u>Examiner's Comments</u> Around 60% of candidates could identify the cone. A common wrong answer was A. Some wrote 'Cone' rather than 'B', which was accepted.
	b		G	1	Accept any clear indication e.g. the third one

					May be on diagram
					<u>Examiner's Comments</u> Again, around 60% of candidates could identify the right-angled isosceles triangle. F was the common wrong answer.
	c		Kite or isosceles trapezium with only the given line of symmetry and no right angles	2	B1 for correct shape but inaccurate or • kite with right angle • arrowhead without right angle • rhombus B0 for • square • rectangle • non-isosceles trapezium • arrowhead with right angle • parallelogram • triangle or shape with 5 or more sides Mark intention: accept vertices $\pm$ 2mm and freehand for 2 marks If in doubt, use overlay as guide. Place so the correct point would be in the centre of the square and <i>their</i> point must be in, or on, square formed by red lines within overlay Condone slight extensions, gaps and wobbles If more than 1 drawing and no clear choice mark the worst Mark boldest lines as

						intended diagram
						<u>Examiner's Comments</u> Fewer than 20% of candidates answered this question correctly, mostly the more highly performing candidates. Many candidates drew squares, rectangles, or isosceles triangles. Some drew a shape and its reflection, not one shape. Most candidates did use a ruler. A number of candidates realised that a kite was required but drew one with a right angle to lose 1 mark. Less able candidates did not do well on Question 1.
			Total	4		
17		81		4	B1 for 135 AND M2 for <i>their</i> $(180-45) \div (3 + 2) \times k$ oe ($k = 1, 2$ or 3) or M1 for $x + y =$ <i>their</i> $(180-45)$ or $ECD = 45$ or $DEC = x$ or $BAC = y$ May be seen on diagram e.g. DCB, ECA Implied by 54 <u>Examiner's Comments</u> Most candidates attempting this question did not recognise the lines AB and ED were parallel. They were hence unable to identify angle BAC or	

					angle CED using alternate angles, so the ratio part of the question was largely not attempted. Candidates often identified on the diagram that angle DCE = 45° and angle DCB = 135°, scoring B1M1. A common error was to treat triangle ABC as a right-angled isosceles triangle and hence give $x = 45^\circ$ or 90° as a final answer.
			Total	4	
18			1 : 5 with correct working	5	M1 for $360 \div 12$ or $\frac{(12-2) \times 180}{12}$ oe A1 for 30 or 150 AND M1 for <i>their</i> interior + <i>their</i> exterior = 180 A1 for 30 and 150 If 0 or 1 scored, instead award SC2 for answer 1 : 5 with no or insufficient working If 0 scored, instead award SC1 for $k : 5k$ or for answer 5 : 1 or for 30 and “Correct working” requires evidence of at least one pair of M1A1 30 and/or 150 could be on the diagram Where $k > 1$ and an integer

					150 with no or insufficient working <u>Examiner's Comments</u> Candidates that attempted this question were often able to correctly find the exterior angle by $360^\circ \div 12 = 30^\circ$. Subsequent working often indicated that this result had been mistaken for an interior angle. Some candidates then used angles at a point to find the 'exterior angle', deducting 30° from 360°. Some candidates incorrectly attempted to find the total of the 12 interior angles (1800°) but they frequently made numerical errors.  Misconception An exterior angle is not 360° – size of an interior angle. interior angle + exterior angle = 180°
			Total	5	
19	a		40 and <u>angles</u> on a [straight] <u>line</u> [= 180]	2	B1 for either Accept <u>angles</u> at a <u>point/full turn</u> [=360] if 140, 140 and 40 shown on diagram/working <u>Examiner's Comments</u> Many candidates were able to attempt the numerical calculations to find <i>a</i> and <i>b</i>. Part (a) was often correctly answered as 140°, but candidates were less successful at obtaining the

					answer of 40° for part (b). Candidates struggled to justify their reasoning in both parts of the question, often leaving out key words or giving the calculations as their justification. Very few candidates knew or were able to recall the word 'vertically' for 'vertically opposite angles are equal' but 'opposite angles' was accepted. The reason 'angles at a point or in a full turn' was common for part (b). Often candidates using this reasoning gave an incorrect answer of 80°.  Assessment for learning Candidates need to know the reasons as well as how to find the size of the angle. Angles on a straight line = 180° Angles at a point or in a full turn = 360° Vertically opposite angles are equal. Angle Justification Candidates do not need to fill the answer space on the question paper. Bullet point statements to justify the angle size calculated are perfectly acceptable.
	b		140 and [vertically] opposite angles	2	B1 for either Accept <u>angles</u> on a [straight] <u>line</u> [= 180] if 40 is shown on the diagram/working
			Total	4	
20	a		Correct centre	1	

					Centre clearly marked. By eye. Do not allow diagonal lines <u>Examiner's Comments</u> Most candidates scored the mark for plotting the centre correctly with a minority placing the centre of rotation at one of the corners. Some simply gave the diagonals.
	b		Square drawn	1	Condone good freehand <u>Examiner's Comments</u> The majority answered correctly by drawing a square. A variety of wrong answers were seen, a rectangle being the most common.
			Total	2	
21	a		Octagon	1	Condone poor spelling Ignore embellishments <u>Examiner's Comments</u> Candidates generally identified the polygon correctly, with a wide variety of different spellings. Where incorrect, candidates mostly gave the name of a different polygon; hexagon and pentagon being the most common.
	b		12	1	<u>Examiner's Comments</u> Although correct answers were seen, 8 was a common error.
			Total	2	
22	a		110	1	

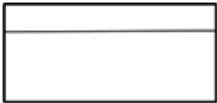
					In both parts, if answer line blank may be in correct place on diagram <u>Examiner's Comments</u> Responses showed a good level of understanding across the whole ability range. The two most common errors were to either transpose the answers to (a) and (b) or to give both angles as 70° due to some confusion between alternate and corresponding angles. Some gave the angle at (a) as 120° showing that they had used a protractor despite the "not to scale" comment. Only a small number of diagrams were annotated.
	b		70	1	In both parts, if answer line blank may be in correct place on diagram
			Total	2	
23	a		2 correct lines of symmetry only	1	Mark intention condoning freehand use BOD Lines should be approx half diameter or longer by eye and intersect within the crossbar and one be within the crossbar. If more than one drawing and no clear choice, mark the worst (2a and 2ci) <u>Examiner's Comments</u> This was not as well answered as might be expected. Many candidates

					did not use a ruler, however, credit was awarded for the correct lines being drawn. Incorrect answers included completing the inner circle, drawing only one line of symmetry, putting arrows on the parallel lines and shading half of the diagram. Some candidates drew a horizontal and a vertical line as the lines of symmetry.
	b		4	1	<u>Examiner's Comments</u> Few candidates were able to accurately answer this question. Many responses suggested a limited understanding of the topic. Incorrect responses included drawing lines on the diagram, 1, 2, clockwise, 90°, 360° and full turn.
	c	i	Sketch of a quadrilateral with exactly one line of symmetry	1	Mark intention and condone freehand kite or isosceles trapezium or arrowhead. If kite, must not appear to have two pairs of parallel sides e.g. look square L of S need not be seen <u>Examiner's Comments</u> Few candidates were able to accurately answer this question. Incorrect responses included drawing triangles, along with many other inaccurate quadrilaterals. Many candidates omitted to answer the question.
		ii	Name consistent with sketch	1dep	Dep on (c)(i) being a recognisable quadrilateral Condone poor spelling Mark name based on your

					decision for shape in (i) Examiner's Comments Few candidates were able to accurately answer this question. Some candidates who had correct shapes in (c) (i) could not name them.
			Total	4	
24	a		Diameter drawn	1	Allow freehand intended straight. No white paper seen between line and centre and line and circumference. Ends no more than 2mm by eye beyond circumference If two lines mark the worst Examiner's Comments Some good answers were seen and many candidates used a ruler. Some drew a line of symmetry, extending beyond the circle and did not score. Some lines fell short of the circumference or missed the centre. The radius, a line through the centre from the chord and a tangent were popular. Some drew curved arrows indicating the circumference.
	b		Chord	1	Condone poor spelling Examiner's Comments The correct answer of "chord" was not common. Where it was seen, it was often not spelled correctly. Radius, tangent, sector and circumference were all popular incorrect answers.

			Total	2	
25	a		60, 120, 60, 120	1	Accept in any order or only on diagram Must be 120 and not 60 60 or 60+60 <u>Examiner's Comments</u> This was a poorly answered problem solving question. Few gave the correct answer for either part. Many did not attempt the second part. Most wrong answers revealed little knowledge of the geometry of triangles or quadrilaterals. Answers of 45, 45, 45, 45 and 90, 90, 90, 90 and 60, 60, 60, 60 were common.
	b		30, 120, 30	2	M1 for diagram with longer diagonal drawn only May be on original drawing If diagram redrawn then diagonal must join "other two" vertices <u>Examiner's Comments</u> In this part, few drew the other diagonal to create two different triangles. Some candidates had clearly measured the angles despite being told the diagram was not to scale.
			Total	3	
26	a		9.3	1	Allow 9.1 to 9.5 <u>Examiner's Comments</u> In this part, a small number of students lacked accuracy and rounded to 9.

	b	i	57	1	Allow 55 to 59 Examiner's Comments Some candidates were not able to correctly use a protractor to measure the angle.
		ii	acute	1	
			Total	3	
27	a		2 correct lines	2	B1 each correct line Treat extra lines as choice Mark intention Accept dashed lines
	b		2 cao	1	
			Total	3	
28			40 with correct working	6	M1 for $x + 85 = 2x + 30$ M1dep for $\pm x = k$ or $kx = \pm 55$ ($k \neq 0$) A1 for $x = 55$ or M1 for at least two trials of $x + 85$ or evaluated for $x = 55$ M1 for at least two trials of $2x + 30$ or evaluated for $x = 55$ A1 both expressions evaluated as 140 when $x = 55$ AND M1 for <i>their</i> $x + 85$ or $2 \times \text{their } x + 30$ M1 for $y = 180 - (\text{their } x + 85)$ oe “Correct working” requires evidence of at least M1 AND M1 ie we expect to see a minimum of an equation or trials leading to $x = 55$ and the substitution

					If 0 scored SC2 for answer 40 with no working or insufficient working or SC1 for $x = 55$ with no or insufficient working	
					<u>Examiner's Comments</u> Almost all candidates did not identify that the intention of this question was to form an equation. A few displayed some evidence that suggested there was an understanding that corresponding angles were equal. Identifying $x + 85 + y = 180$ and/or $2x + 30 + y = 180$ was seen and even solved simultaneously, but this was very rare. More commonly the two expressions $x + 85$ and $2x + 30$ were added together, leading to $3x + 115$ and this was a dead end for most. There were a small number of candidates who tried to use a trial and error approach, but for most this didn't progress very far. The majority made use of the fact that angles on a straight line add up to 180°, but this was often with a value that they hadn't identified as x. Those clearly identifying their value of x were able to go on and earn method marks for substituting this value in to either expression and proceeding to find their y.	
			Total	6		
29			Rectangle 8 by 6 with one internal line 2 cm from longer edge 	3	B1 for a rectangular base B1 for 8 by 6 or for any rectangle with one line drawn inside	Accept in any orientation eg 8 by 6 scores B1B1 8 by 6 with wrong line scores B1B1

					parallel to longer edge 8 by 5 scores B1B0 8 by 5 with one line scores B1B1 <u>Examiner's Comments</u> Few candidates provided a plan view in this part. Many just copied the shape, or both a rectangle and triangle were drawn. Others made an attempt at the net of the prism. A lot of views were drawn diagonally on the grid and the correct dimensions of any rectangles offered were rare.
			Total	3	
30	a		Cone	1	<u>Examiner's Comments</u> This part was also well answered, although a common incorrect answer was circular based pyramid. Other 3D shapes suggested were triangular prism, pyramid and sphere, but these were in the minority. Occasionally a 2D shape was given, such as rhombus or trapezium.
	b		Right-angled [triangle]	1	Accept scalene [triangle] or right angled scalene <u>Examiner's Comments</u> Right-angled triangle featured most often in this part, though a few picked up the mark also from stating scalene. Isosceles was by far the most common error. Some incorrect responses involved types of angles (such as acute, obtuse, 180 degrees) and others suggested equilateral or irregular, or just weren't quite there with for example, 'right handed triangle'.

	c		5	1	<u>Examiner's Comments</u> The majority of responses were correct in this part. Incorrect answers were usually from other familiar polygons (e.g., 3, 4, 6 or 8 sides).
			Total	3	