

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	50.5	M1	for $\cos ABC = \frac{7}{11}$ (0.63...) oe	Must be a complete statement for cos, sin or tan with all three elements present. If an answer is in the range 50.4 to 50.51 is given in the working space then incorrectly rounded, award full marks.
		A1	for answer in the range 50.4 to 50.51	
Q1 (b)	Increase (supported)	C1	States increase with supporting reason eg “ $\frac{7}{10}$ is greater than $\frac{7}{11}$ ” “ 0.636 is less than 0.7 ” ...“cos increases as angle decreases” “decreasing the denominator increases the value of the fraction” “angle is now 45.6” (accept 45.5 – 45.6)	If figures are given they must be correct (truncated or rounded).

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
24	9.85	M1	for $\sin (38) = \frac{AB}{16}$ oe	
Q2		A1	or alternative method to find AB for an answer in the range 9.76 to 9.92	

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Question	Answer	Mark	Mark scheme	Additional guidance
25	99.5	M1	for $\sin(34) = \frac{x}{178}$ oe or alternative method to find x	If an answer in the range 99.5 to 99.7 is given in the working space then incorrectly rounded, award full marks
Q3		A1	for answer in range 99.5 to 99.7	

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Question	Answer	Mark	Mark scheme	Additional guidance
26 (a)	17.8	M1	for $\tan 56 = \frac{x}{12}$ or $(BC) = 12 \times \tan 56$ oe or alternative method to find BC	For any alternative method candidates must arrive at an equation with BC as the only unknown
		A1	for an answer in the range 17.7 to 17.8	If an answer in the range 17.7 to 17.8 is given in the working space then incorrectly rounded, award full marks.
(b)	33.6	M1	for $\cos x = \frac{15}{18}$ or $\cos x = 0.83..$ or $x = \cos^{-1} \frac{15}{18}$ or alternative method to find x	For any alternative method candidates must arrive at an equation with x as the only unknown
Q4		A1	for an answer in the range 33.5 to 33.91	If an answer in the range 33.5 to 33.91 is given in the working space then incorrectly rounded, award full marks.

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Question	Answer	Mark	Mark scheme	Additional guidance
22	8.73	M1	for a correct trig statement, eg $14.5 \times \cos 53$ or $\cos 53 = x \div 14.5$	Can use a combination of skills but must have only one unknown in x to score this mark If an answer is given in the range in working and then rounded incorrectly award full marks.
Q5		A1	answer in the range 8.726 to 8.73	

Paper: 1MA1/2F				
Question	Working	Answer	Mark	Notes
22		32.3	P1	for using Pythagoras to find length of third side of triangle, eg $7.5^2 - 6^2$ or $6^2 + x^2 = 7.5^2$
Q6				or uses trigonometry to find angle in triangle eg $\sin A = \frac{6}{7.5}$ or $\cos B = \frac{6}{7.5}$
			P1	(dep P1) for complete process to find length of third side of triangle eg $\sqrt{7.5^2 - 6^2}$ or $\sqrt{56.25 - 36}$ or $\sqrt{20.25}$ (=4.5) or uses trigonometry to find base length of triangle eg $7.5 \times \cos "A"$ or $7.5 \times \sin "B"$ or $\frac{6}{\tan "A"}$
			P1	(dep P2) for $24 - 10 - "4.5"$ (= 9.5)
			P1	(indep) for process to find angle CDA , eg $\tan CDA = \frac{6}{base}$ from right-angled triangle
			A1	for answer in the range 32.2 to 32.3

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Question	Answer	Mark	Mark scheme	Additional guidance
25	17.3	P1	for full process to find either angle eg $(180 - 90) \div (2+3) \times 2$ or for 36 or 54 seen as an angle	May be seen on diagram Condone correct values if incorrectly placed.
Q7		P1	for a correct equation using trigonometry eg $\cos [A] = 14 \div AB$	This must be shown as an equation with all four elements (eg cos, [A], 14, AB) present. [A] could be 36 or any angle clearly and unambiguously identified as A. This also applies to [B] with Sine.
		P1	(dep previous P mark) for rearranging their trigonometry equation to make AB the subject eg $(AB =) "14 \div \cos 36"$	
		A1	for an answer in the range 17.3 to 17.4	If an answer is shown in the range in working and then incorrectly rounded award full marks.

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
30	0.5	B1	for 0.5 or $\frac{1}{2}$ oe	
Q8				