Paper 1MA1: 3H				
Question	**Working**	**Answer**	**Mark**	**Notes**
7 **Q1**		5.86	M1 A1	for sin 23 = $\frac{AB}{15}$ NB Allow any alternative equivalent method to form an equation in *AB* 5.8 to 5.9

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5 (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.
		A1	for answer in the range 50.4 to 50.51	If an answer is in the range 50.4 to 50.51 is given in the working space then incorrectly rounded, award full marks.
Q2				
(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: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5 **Q3**	9.85	M1 A1	for $\sin(38) = \frac{AB}{16}$ oe **or** alternative method to find *AB* for an answer in the range 9.76 to 9.92	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5 **Q4**	99.5	M1 A1	for $\sin(34) = \frac{x}{178}$ oe **or** alternative method to find x for answer in range 99.5 to 99.7	If an answer in the range 99.5 to 99.7 is given in the working space then incorrectly rounded, award full marks

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18 **Q5**	17.6	P1	for correct trig statement, eg $\sin 30 = \frac{h}{6}$	
		P1	for complete process to find h, eg $6 \times \frac{1}{2}$ (= 3)	
		P1	for correct substitution into the area of a trapezium formula, eg $\frac{1}{2}(a+b)\times"3" = 66$ **or** $a + b = 44$ **or** $\frac{1}{2}(2x+3x)\times h = 66$	
		P1	for complete correct process to find the length of AB, eg $\left[\frac{66\times 2}{3} \div (2+"3")\right] \times 2$	
		A1	cao	An answer of $\frac{88}{5}$ gets P4 A0

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
6 (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.
Q6				
(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
		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.

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
6 **Q7**	17.3	P1 P1 P1 A1	for full process to find either angle eg (180 − 90) ÷ (2+3) ×2 (=36) **or** for 36 or 54 seen as an angle for a correct equation using trigonometry eg cos [*A*] = 14÷ *AB* (dep previous P mark) for rearranging their trigonometry equation to make *AB* the subject eg (*AB* =) "14 ÷ cos 36" for an answer in the range 17.3 to 17.4	May be seen on diagram Condone correct values if incorrectly placed. 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. If an answer is shown in the range in working and then incorrectly rounded award full marks.

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 **Q8**	32.1	P1	starts process, eg $\sin 40 = \frac{DB}{8.6}$ oe or for 8.6 × sin 40 (=5.52797…)	Accept values rounded or truncated to 2 dp.
		P1	complete process to find *ED*, eg (8.6 × sin40) ÷ 2 (=2.76...)	
		P1	process to find angle *EAD*, eg $\tan^{-1}\left(\frac{"2.76...."}{4.4}\right)$ or $\tan^{-1}$ (“0.628…”)	
		A1	answer in range 32.09 to 32.2	If an answer in the range is seen in working and then incorrectly rounded award full marks

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5 **Q9**	8.73	M1 A1	for a correct trig statement, eg 14.5 × cos 53 or cos 53 = $x \div 14.5$ answer in the range 8.726 to 8.73	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.

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 **Q10**	23.4	M1	for stating that $AC = 8$ or for a relationship that may be used to find AC eg $(AC =) 8 \times \tan 45$ or $\tan 45 = \frac{AC}{8}$	May be seen on diagram May use the sine rule
		M1	for relationship that may be used to find AB, eg $\sin(20) =$ "8" $\div AB$ or $(AB =) \frac{"8"}{\sin 20}$	
		A1	for answer in the range 23.3 to 23.4	If an answer is given in the range in working and then rounded incorrectly award full marks.
			Alternative	
		M1	for a relationship that may be used to find AD eg $\cos(45) = 8 \div AD$ oe or $(AD =)$ 11.3(13...)	May be seen on diagram
		M1	for a relationship that may be used to find AB, eg $\frac{AB}{\sin 45} = \frac{"11.3"}{\sin 20}$	
		A1	for answer in the range 23.3 to 23.4	If an answer is given in the range in working and then rounded incorrectly award full marks.

Paper: 1MA1/2H				
Question	**Working**	**Answer**	**Mark**	**Notes**
7 **Q11**		32.3	P1	for using Pythagoras to find length of third side of triangle, eg $7.5^2 - 6^2$ or $6^2 + x^2 = 7.5^2$ 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 × cos "A" or 7.5 × 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 $\tan CDA = \frac{6}{\text{base}}$ from right- angled triangle
			A1	for answer in the range 32.2 to 32.3