

Delta 3 – Unit 9 Revision Answers

Q1.

Question	Working	Answer	Mark	Notes
	Volume = $\frac{5 \times 12}{2} \times 15$ Mass = $\frac{5 \times 12}{2} \times 15 \times 6.6$	2970	3	M1 $\frac{5 \times 12}{2} \times 15$ (=450) M1 (dep on 1 st M1) '450' $\times 6.6$ A1 cao SC: If no marks awarded then award B1 for an answer of 5940

Q2.

Question	Working	Answer	Mark	Notes
		9	M1	for $\sin 30^\circ = \frac{x}{18}$ or $18 \times \sin 30$
			A1	cao

Q3.

Question	Answer	Mark	Mark scheme	Additional guidance
	9.85	M1	for $\sin (38) = \frac{AB}{16}$ oe or alternative method to find AB	
		A1	for an answer in the range 9.76 to 9.92	

Q4.

	Working	Answer	Mark	Notes
		3.52	3	M1 for $1.35^2 + 3.25^2$ M1 (dep) for $\sqrt{(1.35^2 + 3.25^2)}$ (=√12.385) A1 for answer in the range 3.51 to 3.52

Q5.

Question	Working	Answer	Mark	Notes
		30.7	2	M1 recall of appropriate formula, e.g. $\tan x = \frac{1.9}{3.2}$ A1 answer in range 30.6 to 30.7

Q6.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
(a)		$\frac{\sqrt{3}}{2}$	B1
(b)		6	M1 starts process eg $\sin 30 = \frac{x}{12}$ A1 answer given

Q7.

Question	Answer	Mark	Mark scheme	Additional guidance
(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	
(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).

Q8.

Question	Answer	Mark	Mark scheme	Additional guidance
	39.5	P1	for a start to a process eg, for a correct trigonometric statement, eg $\sin 48 = \frac{7.3}{AC}$ or $\cos 42 = \frac{7.3}{AC}$ or $\frac{AC}{\sin 90} = \frac{7.3}{\sin 48}$ OR angle CAH unambiguously identified on a diagram	Must include correct values
		P1	for a complete correct process to find AC , eg $(AC =) \frac{7.3}{\sin(48)}$ (=9.8..) or $(AC =) \frac{7.3}{\cos(42)}$ (=9.8..) or $(AC =) \sin 90 \times \frac{7.3}{\sin 48}$ (=9.8..)	
		P1	for a correct statement using angle CAH , eg $\tan(CAH) = \frac{8.1}{9.8...}$ OR $\sqrt{8.1^2 + 9.8^2}$ (=12.7...) and $\frac{\sin CAH}{8.1} = \frac{\sin 90}{12.7}$	
		A1	for answer in the range 39.5 – 39.51	If an answer is given in the range but then incorrectly rounded award full marks.

Q9.

PAPER: IMA0_2H				
Question	Working	Answer	Mark	Notes
(a)		7.5	3	M1 for $4.5^2 + 6^2$ (=56.25) M1 for $\sqrt{56.25}$ or $\sqrt{(4.5^2 + 6^2)}$ A1 for 7.5
(b)		217	4	M1 for use of appropriate trig ratio eg $\tan CAB = \frac{4.5}{6}$ (= 0.75), $\sin CAB = \frac{4.5}{7.5}$ (= 0.6), $\cos CAB = \frac{6}{7.5}$ (= 0.8) M1 for inverse trig shown correctly eg $CAB = \tan^{-1} \frac{4.5}{6}$ (= 0.75), $CAB = \sin^{-1} \frac{4.5}{7.5}$ (= 0.6), $CAB = \cos^{-1} \frac{6}{7.5}$ (= 0.8) A1 for 36.8 to 37 (or 53 to 53.2 if identified as ACB) B1ft for bearing $180 + "36.8"$ if "36.8" is not 40-50 eg 216.8 to 217

Q10.

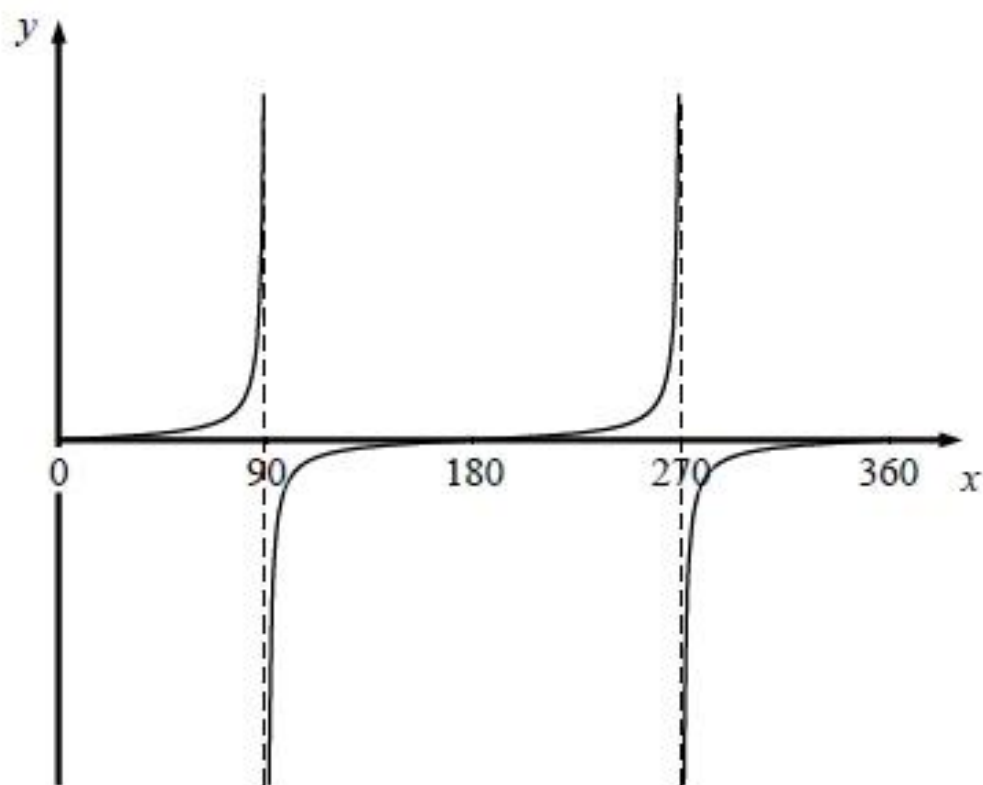
Question	Answer	Mark	Mark scheme	Additional guidance
	73.6	P1	for correct initial use of Pythagoras eg $5^2 + 5^2$ (=50) or a trigonometric ratio in the form $\frac{5 \div 2}{0.5AC} = \sin 45$ oe	do not accept $\sqrt{20} \div 2$
		P1	for finding the length of half of the diagonal eg $\sqrt{50} \div 2$ (= 3.5...) or $0.5AC = \frac{5 \div 2}{\sin 45}$ (=3.5...) oe	
		P1	for process to use tan eg $\tan TAC = (12 \div "3.5..")$ (=3.3..) or complete alternative method arriving at an equation with the subject as $\sin TAC$ or $\cos TAC$	
		A1	for an answer in the range 73.58 to 74.1	

Q11.

	Working	Answer	Mark	Notes
	$\cos y = 2.25 \div 6$ $y = \cos^{-1}(2.25 \div 6)$ OR $6\cos 75 = 1.55...$	The ladder is not safe because y is not near to 75	3	M1 for $\cos y = 2.25 \div 6$ oe M1 for $\cos^{-1}(2.25 \div 6)$ C1 for sight of 67-68 and a statement eg this angle is NOT (near to) 75° and so the ladder is not steep enough and so not safe. OR M1 for $\cos 75 = x \div 6$ M1 for $6\cos 75$ C1 for sight of 1.55(29...) and a statement eg that 2.25 NOT (near to) 1.55 and so the ladder is not steep enough and so not safe.

Q12.

Question	Answer	Mark	Mark scheme	Additional guidance
	Graph drawn	C2 (C1	for fully correct sketch between 0° and 360° for a graph with clear asymptotes at 90° and 270° only or the correct graph translated along the x -axis must have a period of 180)	



Q13.

	Working	Answer	Mark	Notes
(a)		$(90, 0)$	1	B1 for $(90, 0)$ (condone $(\pi/2, 0)$)

Q14.

PAPER: IMA0_1H				
Question	Working	Answer	Mark	Notes
(a)		$180, 0$	1	B1 for $180, 0$ Accept $\pi, 0$
(b)		$270, -1$	1	B1 for $270, -1$ accept $\frac{3\pi}{2}, -1$