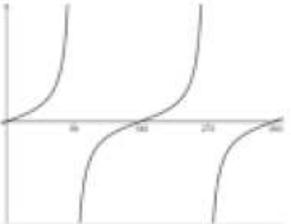


Question	Answer	Marks	AO Element	Notes	Guidance
1(a)	 <p data-bbox="398 472 741 536">Correct sketch to go through (0, 0), (180, 0) and (360, 0)</p>	2		<p data-bbox="1458 491 1751 587">B1 for correct sine curve shape through the origin</p>	
1(b)	<p data-bbox="398 647 613 675">199.5 or 199.47...</p> <p data-bbox="398 703 443 730">and</p> <p data-bbox="398 759 730 786">340.5 or 340.52 to 340.53...</p>	3		<p data-bbox="1458 647 1675 675">B2 for one correct</p> <p data-bbox="1458 703 1727 767">or M1 for $\sin x = -\frac{1}{3}$</p> <p data-bbox="1458 775 1487 802">oe</p> <p data-bbox="1458 826 1751 994">If 0 scored, SC1 for two reflex angles with sum of 540 or two non-reflex angles with sum of 180</p>	
2	<p data-bbox="398 1054 613 1082">221.8 or 221.81...</p> <p data-bbox="398 1110 443 1137">and</p> <p data-bbox="398 1166 707 1193">318.2 or 318.18 to 318.19</p>	3		<p data-bbox="1458 1054 1675 1082">B2 for one correct</p> <p data-bbox="1458 1110 1727 1174">or M1 for $\sin x = -\frac{2}{3}$</p> <p data-bbox="1458 1182 1487 1209">oe</p> <p data-bbox="1458 1233 1751 1401">If 0 scored, SC1 for two reflex angles with a sum of 540 or two non-reflex angles with a sum of 180</p>	

Question	Answer	Marks	AO Element	Notes	Guidance
3	48.6 or 48.59... and 131.4 or 131.4...	2		B1 for each If 0 scored SC1 for two answers with a sum of 180°	
4(a)	Correct sketch 	2		B1 for one correct branch or correct sketch but with branches joined	
4(b)	11.3 or 11.30 to 11.31 and 191.3 or 191.30 to 191.31	2		B1 for each If 0 scored SC1 for two answers with a difference of 180°	
5	48.6 or 48.59 to 48.60 and 131.4 or 131.40 to 131.41	3		B2 for 48.6 or 48.59 to 48.60 or 131.4 or 131.40 to 131.41 or M1 for $\sin x = 0.75$ or better If 0 scored, SC1 for two answers adding to 180	

Question	Answer	Marks	AO Element	Notes	Guidance
6	6.74[0...]	2		M1 for $\frac{AB}{11.2} = \sin 37$ or better	
7	66.4[2.....]	2		M1 for $\cos [\dots] = \frac{2}{5}$ oe	
8(a)	116.6 or 116.56 to 116.57	4		M1 for $\sin [EAD] = \frac{6}{12}$ oe M1 for $\tan [BAC] = \frac{6}{12}$ oe B1 for [angle <i>DAC</i>] = 60	
8(b)	13.4 or 13.41 to 13.42	2		M1 for $12^2 + 6^2$	
8(c)	10.4 or 10.39...	3		M2 for $\sqrt{12^2 - 6^2}$ or M1 for $AE^2 + 6^2 = 12^2$	

Question	Answer	Marks	AO Element	Notes	Guidance
8(d)	130 or 129.5... to 129.6	4		<p>M1 for $0.5 \times 6 \times \text{their } AE$ oe</p> <p>M1 for $0.5 \times 12 \times 12 \times \sin 60$ oe</p> <p>M1 for $0.5 \times 6 \times 12$ oe</p>	
9(a)	Angle [in] semi-circle [is 90]	1			
9(b)(i)	67.4 or 67.38.....	2		<p>M1 for $\cos [A =] \frac{20}{52}$ or better</p>	
9(b)(ii)	$[(BC)^2] = \sqrt{52^2 - 20^2}$	2		<p>M1 for $20^2 + (BC)^2 = 52^2$</p>	
9(b)(iii)	480	2		<p>M1 for $0.5 \times 20 \times 48$ or better</p>	
9(b)(iv)	582 or 581.8 to 582.0	3		<p>M1 for $\left[\frac{1}{2} \times \right] \pi \times \left(\frac{52}{2} \right)^2$ or better</p> <p>M1 for <i>their</i> 338π – <i>their</i> (b)(iii)</p>	
10	7.06 or 7.063 to 7.064	2		<p>M1 for $\frac{[]}{8} = \cos 28$ or better</p>	

Question	Answer	Marks	AO Element	Notes	Guidance
					[Total: 46]