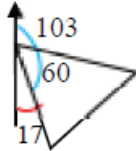


Question	Answer	Marks	AO Element	Notes	Guidance
1	16.6 or 16.64...	5		M2 for $21 \times \frac{18}{13.5} = [AC]$ oe or M1 for scale factor $\frac{13.5}{18}$ or $\frac{18}{13.5}$ oe soi Then Pythagoras method: and M2 for $\sqrt{28^2 + 18^2} [\div 2]$ or $\sqrt{(their\ AC)^2 + 18^2} [\div 2]$ or M1 for $AD^2 = 28^2 + 18^2$ or $AD^2 = (their\ AC)^2 + 18^2$ OR alternative trigonometry method e.g. M1 for $\tan E = \frac{21}{13.5}$ and M1 for $AD = \frac{18}{\cos\ their\ 57.3}$	

Question	Answer	Marks	AO Element	Notes	Guidance
2	343	2		B1 for 103 in correct position and 60 or 17 in correct position 	
3(a)	530	4		B3 for $[DE] = 130$ m and $[DC] = 80$ m or B2 for $[DE] = 130$ m or $[DC] = 80$ m or M1 for $50^2 + 120^2$ or $170^2 - 150^2$	
3(b)	52.9 or 52.89...	4		M2 for $\frac{100^2 + 150^2 - 120^2}{2 \times 100 \times 150}$ or M1 for $120^2 = 100^2 + 150^2 - 2 \times 100 \times 150 \cos ()$ A1 for 0.603 or 0.6033... or $\frac{181}{300}$	
3(c)(i)	28.1 or 28.07...	2		M1 for $\cos = \frac{15}{17}$ oe	

Question	Answer	Marks	AO Element	Notes	Guidance
3(c)(ii)	331.9 or 331.9...	2		FT 360 – <i>their</i> (c)(i) M1 for 360 – <i>their</i> (c)(i) oe	
3(d)	1.5[0] or 1.498... nfw	4		M1 for $\frac{1}{2} \times 50 \times 120$ oe M1 for $\frac{1}{2} \times 100 \times 150 \sin$ <i>their</i> (b) oe M1 for $\frac{1}{2} \times 150 \times$ <i>their</i> <i>CD</i> oe or $\frac{1}{2} \times 150 \times 170 \times \sin$ <i>their</i> (c) (i) If 0 scored, SC1 for dividing <i>their</i> area by 10 000	
4(a)	2.95 or 2.954 to 2.955	3		M2 for $\sqrt{5.3^2 - 4.4^2}$ or better or M1 for $5.3^2 = 4.4^2 + y^2$ or better	
4(b)	40.3 or 40.26 to 40.27...	2		M1 for $\sin [x =] \frac{5.3}{8.2}$	

Question	Answer	Marks	AO Element	Notes	Guidance
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	
6	25.1 or 25.06...	4		M3 for $\tan = \frac{8}{\sqrt{16.2^2 + 5.5^2}}$ oe or M2 for $\sqrt{16.2^2 + 5.5^2}$ or M1 for $16.2^2 + 5.5^2$ or B1 for identifying correct angle	
7	109.3 or 109.26 to 109.27	3		M2 for $\frac{12 \sin 39}{8}$ or M1 for $\frac{8}{\sin 39} = \frac{12}{\sin (\dots)}$ oe	
8(a)	-6 2 14 14 2 -6	3		B2 for 4 or 5 correct B1 for 2 or 3 correct	

Question	Answer	Marks	AO Element	Notes	Guidance
8(b)	Completely correct curve	4		B3FT for 9 or 10 correctly plotted points B2FT for 7 or 8 correctly plotted points B1FT for 5 or 6 correctly plotted points	
8(c)(i)	$x = -0.5$ oe	1			
8(c)(ii)	($-0.5, k$) oe where $14 < k \leq 14.8$	1			
8(d)	3.3 to 3.7, -4.7 to -4.3	2		B1FT for each	
9	42.2 or 42.23....	2		M1 for $\frac{1}{2} \times 8.9 \times 12.5 \times \sin 130.6$ oe	
[Total: 51]					