Question Number	Scheme	Marks
	Third A1 for $4m(0.8u - 2u)$ or $-4m(0.8u - 2u)$ **OR** for $m(0.8u + 4u)$ or $-m(0.8u + 4u)$ Fourth A1 for $4.8mu$ (must be positive since magnitude)	
4(i)	$$\lvert \mathbf{F}_2 \rvert^2 = 8^2 + 14^2 - 2 \times 8 \times 14 \cos 30$$	M1 A1
	Solve for $\lvert \mathbf{F}_2 \rvert = 8.1$ (N) or better	M1 A1 (4)
	OR: $\quad \begin{aligned} \lvert \mathbf{F}_2 \rvert \cos\alpha &= 14\cos 30 - 8 \\ \lvert \mathbf{F}_2 \rvert \sin\alpha &= 14\sin 30 \end{aligned}$	M1 A1
	Solve for $\lvert \mathbf{F}_2 \rvert = 8.1$ (N) or better	M1 A1 (4)
4(ii)	$$\frac{\sin\theta}{8} = \frac{\sin 30}{8.12467} \quad \text{or} \quad \frac{\sin\phi}{14} = \frac{\sin 30}{8.12467}$$	M1 A1
	Solve: $\quad \theta = 29.49^o \quad$ or $\quad \phi = 120.51^o$	M1 A1
	Bearing is 149° (nearest degree)	A1 (5)
	OR: $\quad \begin{aligned} \lvert \mathbf{F}_2 \rvert \cos\alpha &= 14\cos 30 - 8 = 4.124(355.) \\ \lvert \mathbf{F}_2 \rvert \sin\alpha &= 14\sin 30 \end{aligned}$	M1 A1
	Solve: $\quad \alpha = 59.49^o$	M1 A1
	Bearing is 149° (nearest degree)	A1 (5)
	Notes	
4(i)	First M1 for use of cos rule with 30° First A1 for a correct equation **OR:** First M1 for 'resolving' in 2 directions with $30^o / 60^o$ (**N.B.** M0 here if cos/sin confused) First A1 for TWO correct equations Second M1 for solving for $\lvert \mathbf{F}_2 \rvert$, <u>independent</u> *but* must be solving a 'correct cosine formula but with wrong angle' if using method 1 **OR** for eliminating α from two equations, <u>independent</u> *but* equations must have the correct structure if using method 2 Second A1 for 8.1 (N) or better	
4(ii)	First M1 for use of sin rule with 30° First A1 for a correct equation (<u>allow 8.12 or better</u>) **OR:** First M1 for 'resolving' in 2 directions with $30^o / 60^o$	