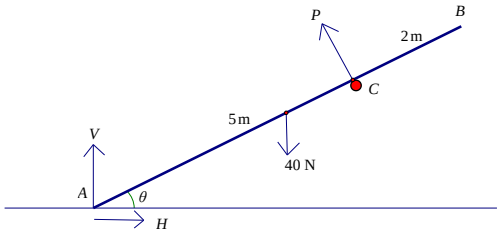
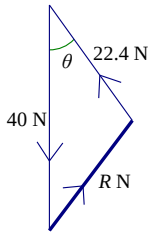
Q	Scheme	Mark	Notes
6a			
	Moments about A:	M1	Dimensionally correct. Condone sine / cosine confusion
	$5P = 40 \times \frac{7}{2}\cos\theta$	A1	Correct unsimplified equation
	$P = 22.4$ *	A1*	Obtain **given answer** from correct working. Need to see evidence of $\cos\theta = \frac{4}{5}$
		[3]	
6b	Two equations required. M1A1 for the first equation seen, M1A1 for the second equation. If more than 2 equations mark the two equations used to obtain the resultant, or the best 2 if they do not go on to find the resultant.		
	First equation	M1	e.g. Resolve horizontally Condone sine / cosine confusion
	$H = P\sin\theta \left(=13.44\right)$	A1	Correct unsimplified equation
	Second equation	M1	e.g. Resolve vertically Condone sine / cosine confusion
	$V + P\cos\theta = 40 \left(V = 22.08\right)$	A1	Correct unsimplified equation
	$\left\|R\right\| = \sqrt{H^2 + V^2}$	DM1	solve for $\left\|R\right\|$ Dependent on the 2 preceding Ms
	$\left\|R\right\| = 26 \left(\text{N}\right)$	A1	Or better (25.84879…..) Accept $\frac{24\sqrt{29}}{5}$
		[6]	
Two alternatives on following page			

6balt	First equation	M1	e.g. Resolve parallel Condone sine / cosine confusion
	$X = 40\sin\theta\,(=24)$	A1	Correct unsimplified equation
	Second equation	M1	e.g. Resolve perpendicular Condone sine / cosine confusion
	$Y + P = 40\cos\theta\,(Y = 9.6)$	A1	Correct unsimplified equation
	$\lvert R\rvert = \sqrt{X^2 + Y^2}$	DM1	solve for $\lvert R\rvert$ Dependent on the 2 preceding Ms
	$\lvert R\rvert = 26\,(\text{N})$	A1	Or better (25.84879…..) Accept $\frac{24\sqrt{29}}{5}$
		[6]	
	Alternative equations: $\text{M}(C)\quad 40\times1.5\cos\theta + H\times5\sin\theta = V\times5\cos\theta$ $\text{M}(B)\quad 2P + 7\cos\theta\times V = 7\sin\theta\times H + 3.5\times40\cos\theta$ $\text{M}(G)\quad 1.5P + 3.5\sin\theta\times H = 3.5\cos\theta\times V$		
6balt		M1 A1	3 force diagram seen or implied Forces and angle in correct positions
	Use Cosine Rule	M1	Correct formula used
	$(\lvert R\rvert)^2 = 40^2 + 22.4^2 - 2\times40\times22.4\cos\theta$	A1	Correct unsimplified equation
	Substitute for trig and solve for $\lvert R\rvert$	DM1	Dependent on the 2 preceding Ms
	$\lvert R\rvert = 26\,(\text{N})$	A1	Or better (25.84879…..) Accept $\frac{24\sqrt{29}}{5}$
		[6]	
		(9)	