

Question	Answer	Marks	Guidance
	Resolving either direction	<b>M1</b>	3 terms; allow sign errors and allow sin/cos mix
	$(X =) \pm (20 \cos 60 - 14 - 16 \cos 50) \quad [= \mp 14.2846 \dots \dots \dots]$	<b>A1</b>	
	$(Y =) \pm (60 - 20 \sin 60 - 16 \sin 50) \quad [= \pm 30.42278 \dots \dots \dots]$	<b>A1</b>	
	$R = \sqrt{(14.2846 \dots)^2 + (30.42278 \dots)^2}$	<b>M1</b>	Attempt to solve for $R$ ; one missing term in total
	$\theta = \tan^{-1} \left( \frac{30.42278 \dots}{14.2846 \dots} \right) [= \tan^{-1} (2.1297 \dots \dots)]$ OR $\alpha = \tan^{-1} \left( \frac{14.2846 \dots}{30.42278 \dots} \right) [= \tan^{-1} (0.4596 \dots \dots)]$	<b>M1</b>	Attempt to solve for $\theta$ or $\alpha$ ; one missing term in total
	$R = 33.6 \text{ N}$  Direction is $64.8^\circ$ above the 14 N force or $25.2^\circ$ above the negative $x$ -axis or $25.2^\circ$ left of the 60 N force or bearing $335^\circ$ or $115^\circ$ anticlockwise from the positive $x$ -axis	<b>A1</b>	Both correct.  OE; allow 64.9, 25.1 Giving an angle only is insufficient. Direction may be seen on a diagram, with minimum of arrow on resultant. Arrows on both components only is A0 as it doesn't show the direction of the resultant. However the direction is stated, it must be able to be drawn uniquely.
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