P 2-27

Determine the magnitude and direction of the resultant of the force system shown in Figs. P2-24 to P2-27.

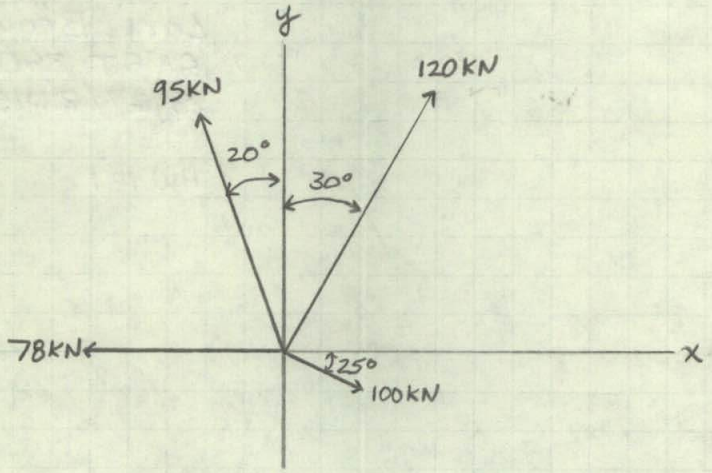
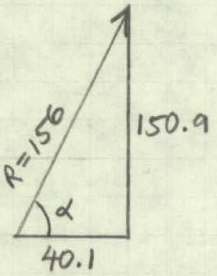


FIGURE P2-27

Solution.

Force	X component	y component
78KN	-78	0
95KN	$-(95 \sin 20°) = -32.5$	$95 \cos 20° = 89.3$
120KN	$120 \sin 30° = 60$	$120 \cos 30° = 103.9$
100 KN	$100 \cos 25° = 90.6$	$-(100 \sin 25°) = -42.3$
Σ	40.1	150.9

$$R = \sqrt{40.1^2 + 150.9^2} = \underline{\underline{156 \text{ kN}}}$$



$$\alpha = \tan^{-1} \frac{150.9}{40.1} = \underline{\underline{75°}}$$

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CMET 340-01
8/27/2015

HW #1