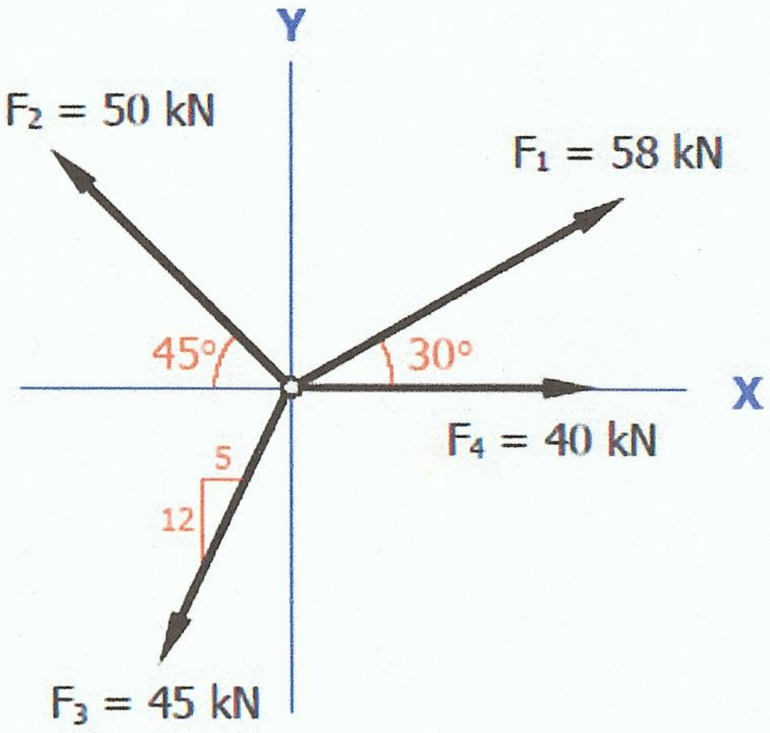
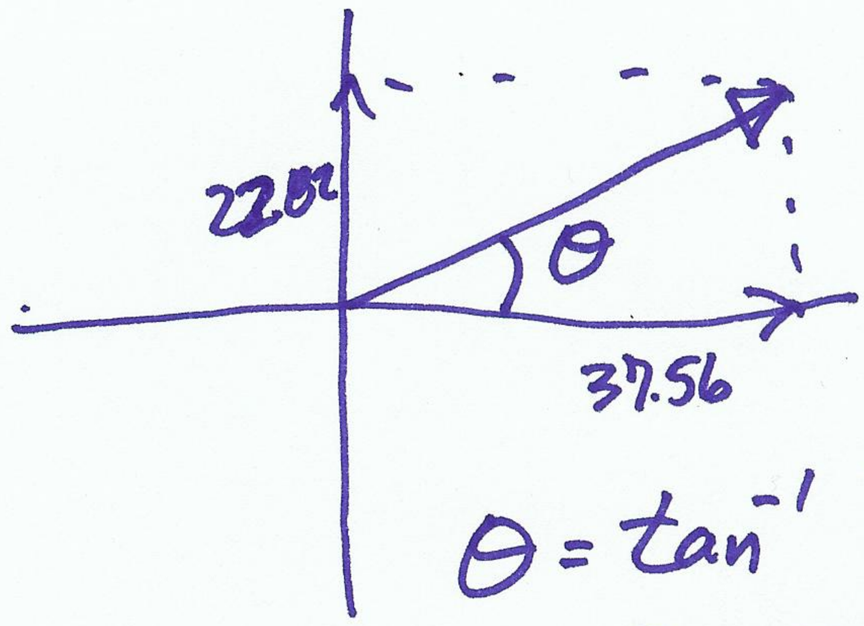
Resultant Force 2

Determine the magnitude and direction of the result force of the four forces below.





$\theta = \tan^{-1} \frac{22.82}{37.56}$

$\theta = 31.28°$

$F_{x_1} = 58 \cos 30° = 50.23 KN$

$F_{y_1} = 58 \sin 30° = 29 KN$

$F_{x_2} = -50 \cos 45° = -35.36 KN$

$F_{y_2} = 50 \sin 45° = 35.36 KN$

$F_{x_3} = -45\left(\frac{5}{13}\right) = -17.31 KN$

$F_{y_3} = -45\left(\frac{12}{13}\right) = -41.54 KN$

$F_{x_4} = 40 KN$

$F_{y_4} = 0$

Σ 37.56 KN

Σ 22.82 KN

$$|R| = \sqrt{37.56^2 + 22.82^2} = 43.9 KN$$

RESULTANT FORCE IS 43.9 KN @ 31.28° CCW From +X AXIS