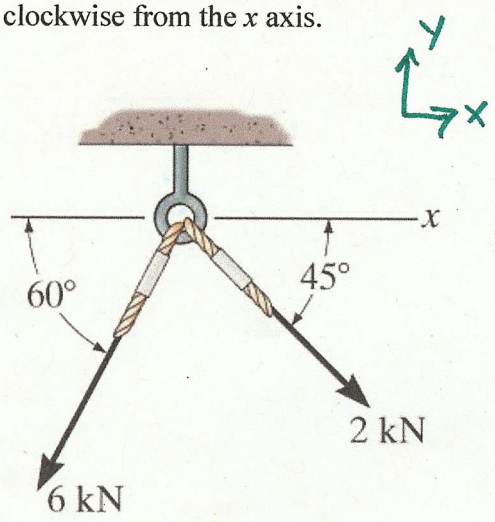
Worksheet 1

Problem 2 – Resultant Forces

Determine the magnitude of the resultant force acting on the screw eye and its direction measured clockwise from the x axis.



$\rightarrow \Sigma F_x = 2\cos 45° - 6\cos 60°$

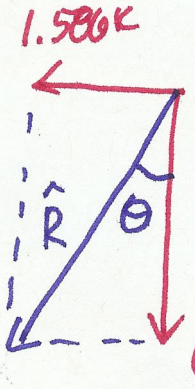
$= -1.586 \text{ KN}$

$= 1.586 \text{ KN} \leftarrow$

$\uparrow \Sigma F_y = -2\sin 45° - 6\sin 60°$

$= -6.61 \text{ KN}$

$= 6.61 \text{ KN} \downarrow$



$\tan\theta = \frac{1.586}{6.61} \Rightarrow \theta = 13.49°$

$|\hat{R}| = \sqrt{1.586^2 + 6.61^2} = 6.80 \text{ KN}$

$\hat{R} = 6.80 \text{ KN}$ @ $103.5°$ CW From positive X AXI