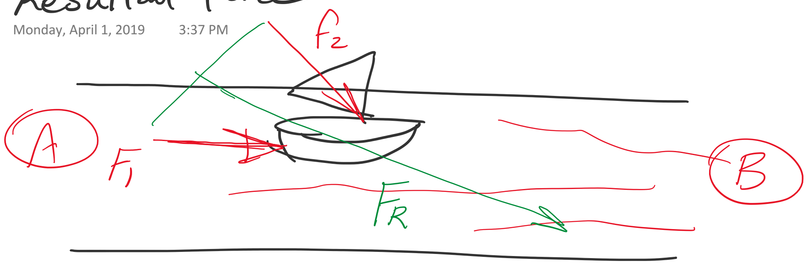
Resultat force

Monday, April 1, 2019 3:37 PM



$(F_1$ and $F_2) \rightarrow F_R$ $\xrightarrow[f_2]{f_1}$ $> F_R = F_1 + F_2$

$F_{12} = F_1 + F_2$

F_1 F_2 - - -

Compound method

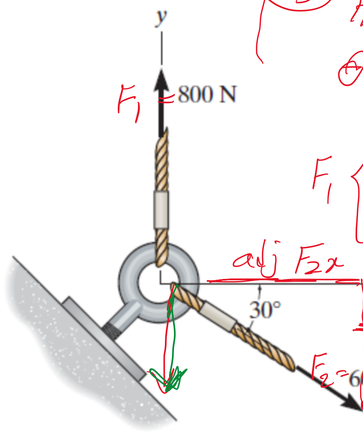
① Break forces into x and y components

② $F_{Rx} = \Sigma f_x = f_{1x} + f_{2x} \cdots$

$F_{Ry} = \Sigma f_y = f_{1y} + f_{2y} + \cdots$

③ $F_R = \sqrt{F_{Rx}^2 + f_{Ry}^2}$

$\theta = \tan^{-1}\left(\frac{F_{Ry}}{F_{Rx}}\right)$



adj F_{2x}

F_1 { $F_{1x} = 0$; $F_{1y} = 800$

F_2 { $F_{2x} = 600 \cos 30$; $F_{2y} = 600 \sin 30$

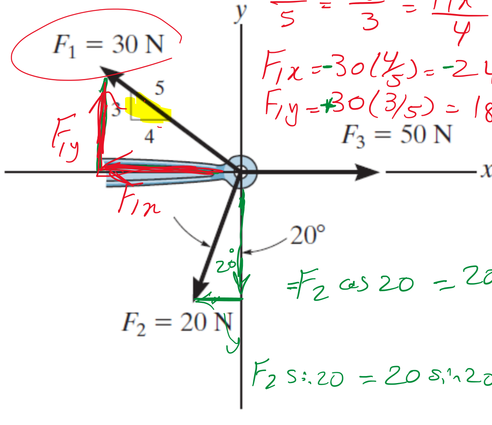
Step 2 { $F_{Rx} = \Sigma F_x = F_{1x} + F_{2x} = 0 + 600 \cos 30 = 520$

$F_{Ry} = \Sigma f_y = 800 - 600 \sin 30 = 500$

$F_{Ry} = 500$ $F_{Rx} = 520$ $F_R = \sqrt{F_{Rx}^2 + F_{Ry}^2} = \sqrt{500^2 + 520^2}$

$F_R =$

$\theta = \tan^{-1}\left(\frac{F_{Ry}}{F_{Rx}}\right) =$



$\frac{30}{5} = \frac{F_{1y}}{3} = \frac{F_{1x}}{4}$

$F_{1x} = -30(4/5) = -24$ → $F_{1x} = -24$

$F_{1y} = +30(3/5) = 18$ $F_{1y} = 18$

$F_{2x} = -6.84$

$F_{2y} = -18.8$

$= F_2 \cos 20 = 20 \cos 20 = 18.8$

$F_2 \sin 20 = 20 \sin 20 = 6.84$

$F_{3x} = +50$

$f_{3y} = 0$

$F_{Rx} = -24 - 6.84 + 50 =$

$F_{Ry} = \Sigma f_y = 18 - 18.8 + 0 = -0.8$

$F_R = \sqrt{F_{Rx}^2 + F_{Ry}^2}$

$\theta = \tan^{-1}\left(\frac{F_{Ry}}{F_{Rx}}\right)$ →