mecânica I

1/1 -

$\vec{V} = -36\hat{i} + 15\hat{j}$; $\theta_x = ?$; $\theta_y = ?$; $n = ?$

$V = \sqrt{V_x^2 + V_y^2} \Rightarrow \sqrt{36^2 + 15^2}$

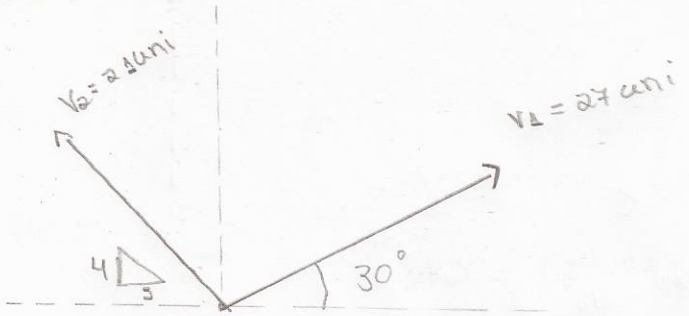
$= 39$

$\cos\theta_x = \frac{V_x}{V} \Rightarrow \frac{-36}{39} \quad \therefore \theta_x = 157,38°$

$\cos\theta_y = \frac{V_y}{V} = \frac{15}{39} \quad \therefore \theta_y = 67,4°$

$n = \frac{\vec{V}}{V} = \frac{-36\hat{i} + 15\hat{j}}{39} = -0,923\hat{i} + 0,385\hat{j}$

1/2 -



$\text{Sen}\beta = \frac{\text{sen}\,83,1°}{32,2} \quad \therefore \beta = 40,4°$

$\theta_2 = \beta + 30° \Rightarrow 40,4° + 30$

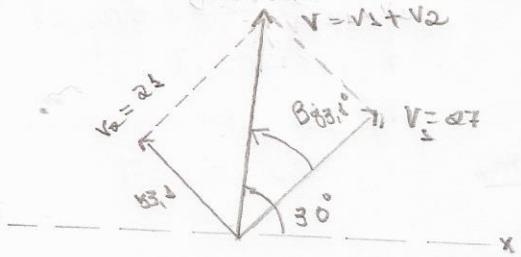
$= 70,7° \approx 70°$

solução algebrica.

$V^2 = 27^2 + 21^2 - 2.(27).(21).\cos 83,1°$

$V = 32,3$

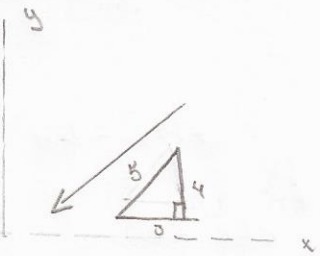
solução gráfica



2/3

$F = 4,8$ KN

$\vec{F} = \hat{i}$ e $\hat{j}$



$F = 4,8\left(-\frac{3}{5}\hat{i} - \frac{4}{5}\hat{j}\right)$

$F = (-2,88\hat{i} - 3,84\hat{j})$ KN