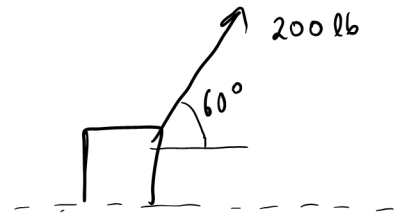
Components of Diagonal Forces



if you pull a box w/ force of 200 lb at an ∡ of 60° from pos x-axis

then you are BOTH pulling the box up AND pulling the box right

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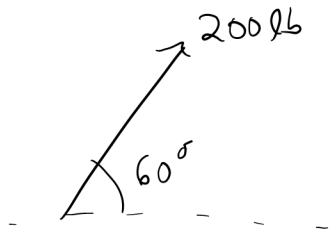
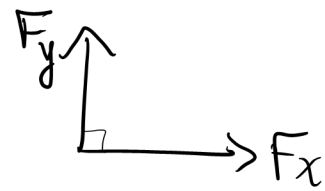
Mathematically:



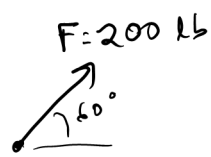
is equal to the sum of two perpindicular component forces



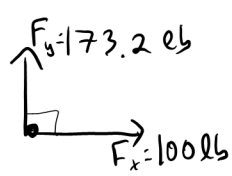
where $F_y = 200 \cdot \sin(60°) \approx 200 \cdot (0.8660) \approx 173.2\text{ lb}$

and $F_x = 200 \cdot \cos(60°) = 200 \cdot \frac{1}{2} = 100\text{ lb}$

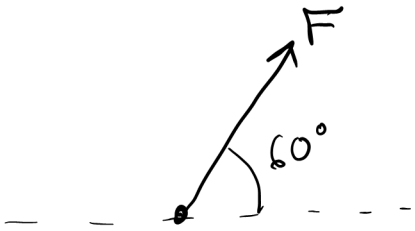
This means that



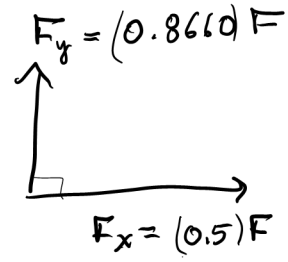
is equivalent to



let the variable F denote the force along the rope

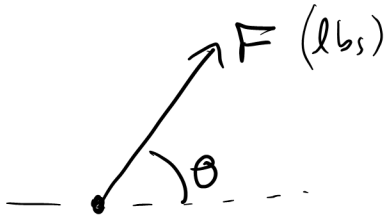


is equivalent to

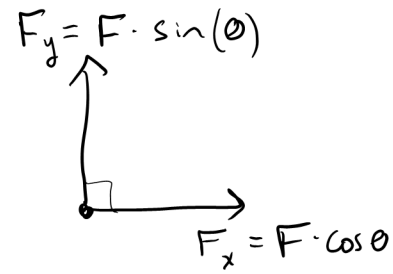


In General

a force of F lbs at θ degrees from positive x-axis



is equal to

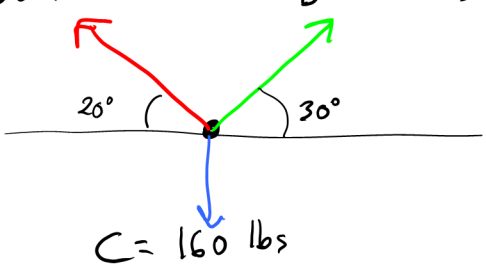


Systems with Multiple Forces

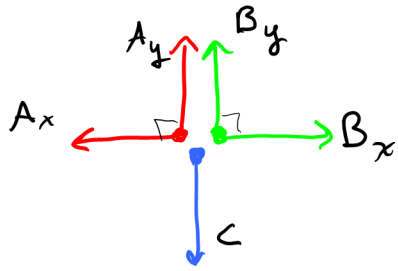
write components of each forces

A = 150 lbs

B = 200 lbs



is equivalent to



use trigonometry and a calculator to find coefficients

(eg: $B_x = \cos(30) \cdot B$
$B_y = \sin(30) \cdot B$
...)