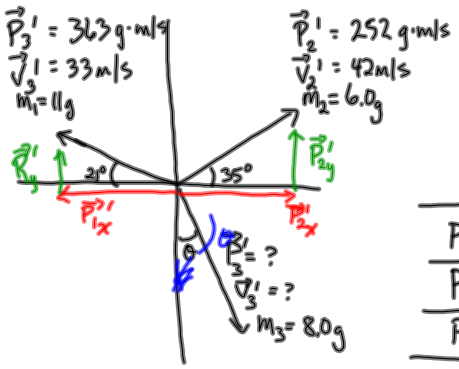
MP|511




BEFORE

$\vec{p}_{total} = 0$

AFTER

| | x | y |
|---|---|---|
| $p_1$ | $-(363\ g\cdot m/s)\cos 21°$ | $+(363\ g\cdot m/s)\sin 21°$ |
| $p_2$ | $+(252\ g\cdot m/s)\cos 35°$ | $+(252\ g\cdot m/s)\sin 35°$ |
| $p_3$ | x | y |
| $p_{total}$ | 0 | 0 |

Along the x-axis:

$-(363\ g\cdot m/s)\cos 21° + (252\ g\cdot m/s)\cos 35° + x = 0$

$-338.89\ g\cdot m/s + 206.43\ g\cdot m/s + x = 0$

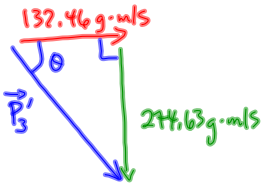
$x = 132.46\ g\cdot m/s$

Along the y-axis:

$(363\ g\cdot m/s)\sin 21° + (252\ g\cdot m/s)\sin 35° + y = 0$

$130.09\ g\cdot m/s + 144.54\ g\cdot m/s + y = 0$

$y = -274.63\ g\cdot m/s$




$\tan\theta = \frac{274.63}{132.46}$

$\theta = 64.3°$

$p_3' = \sqrt{132.46^2 + 274.63^2}$

$p_3' = 304.90\ g\cdot m/s$

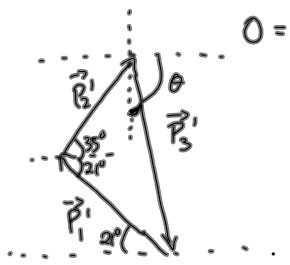
$\vec{v}_3' = \frac{304.90\ g\cdot m/s}{8.0g}$ [64° CW from + x-axis]

$\vec{v}_3' = 38\ m/s$ [64° CW from + x-axis]

Using a vector addition diagram:

$\vec{p}_{total} = \vec{p}_{total}'$

$0 = \vec{p}_1' + \vec{p}_2' + \vec{p}_3'$




TO DO

PP|513