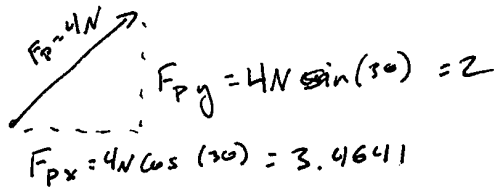
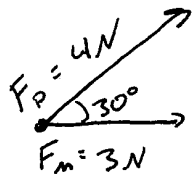


Resolving Forces

(1) a)



b) $\Sigma F_x = F_{px} + F_m$

$= 3.4641 + 3 = 6.4641N$

c) $\Sigma F_y = F_{py}$

$= 2N$

d) $a_x = \frac{\Sigma F_x}{m}$

$= \frac{6.4641N}{5}$

$= 1.293 \text{ m/s}^2$

e) $a_y = \frac{\Sigma F_y}{m}$

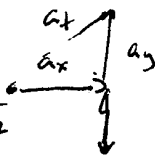
$= \frac{2N}{5 \text{ kg}}$

$= 0.4 \text{ m/s}^2$

f) $a_{\text{total}}^2 = a_x^2 + a_y^2$

$a_{\text{total}} = \sqrt{(1.293)^2 + (0.4)^2}$

$= 1.353 \text{ m/s}^2$

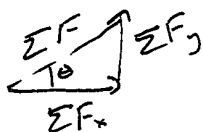


g) $\Sigma F^2 = \Sigma F_x^2 + \Sigma F_y^2$

$\Sigma F = \sqrt{(6.4641)^2 + (2N)^2}$

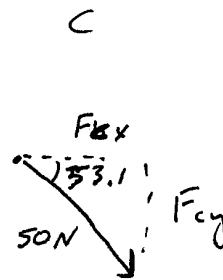
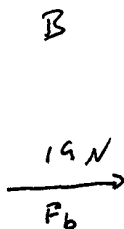
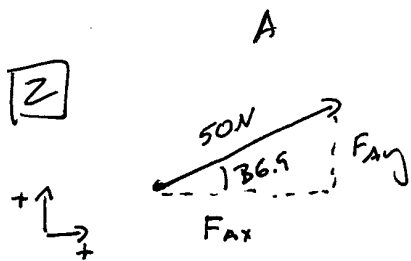
$\Sigma F = 6.766N$

h)



$\text{Tan } \theta = \frac{\Sigma F_y}{\Sigma F_x}$

$\theta = \text{Tan}^{-1} \left(\frac{\Sigma F_y}{\Sigma F_x} \right) = \text{Tan}^{-1} \left(\frac{2N}{6.4641N} \right) = 17.2^\circ$



$$\Sigma F_x = F_{Ax} + F_b + F_{Cx}$$

$$\Sigma F_x = 50 \cos(36.9) + 19N + 50N \cos(53.1)$$

$$\boxed{\Sigma F_x = 89.01 N}$$

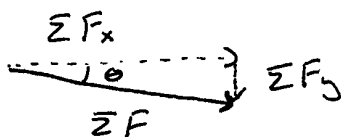
$$\Sigma F_y = F_{Ay} - F_{Cy}$$

$$\Sigma F_y = 50N \sin(36.9) - 50N \sin(53.1)$$

$$\boxed{\Sigma F_y = -9.96 N}$$

~~scribble~~

$\Sigma F:$



$$\tan \theta = \frac{\Sigma F_y}{\Sigma F_x}$$

$$\theta = \tan^{-1} \left(\frac{\Sigma F_y}{\Sigma F_x} \right)$$

~~scribble~~

$$\theta = \tan^{-1} \left(\frac{-9.96 N}{89.01} \right)$$

$$\boxed{\theta = 6.38^\circ}$$

~~scribble~~

$$\Sigma F^2 = \Sigma F_x^2 + \Sigma F_y^2$$

$$\Sigma F = \sqrt{(89.01)^2 + (-9.96)^2}$$

$$\boxed{\Sigma F = 89.57 N}$$

~~scribble~~