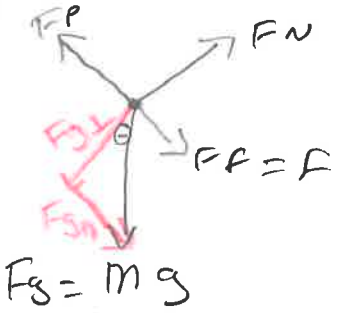
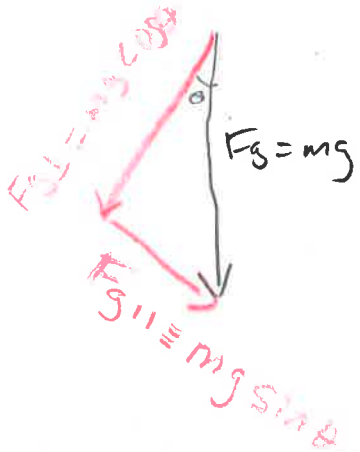
1)





$F_N = mg\cos\theta$

$F_g = mg$

$F_p = F + mg\sin\theta$

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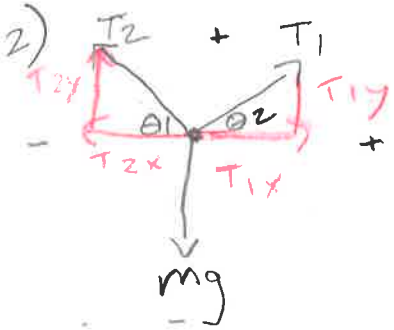
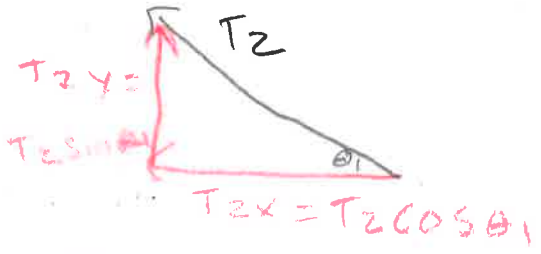
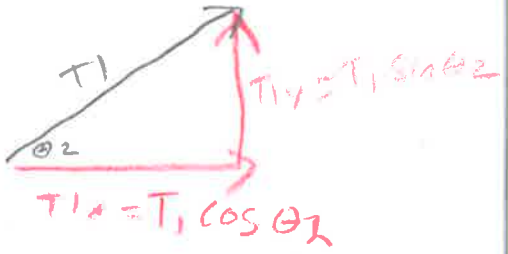
2)







2 continued: $\Sigma F_y = -mg + T_2\sin\theta_1 + T_1\sin\theta_2 = 0$

$mg = T_2\sin\theta_1 + T_1\sin\theta_2 \Rightarrow$ $\boxed{m = \dfrac{T_2\sin\theta_1 + T_1\sin\theta_2}{g}}$

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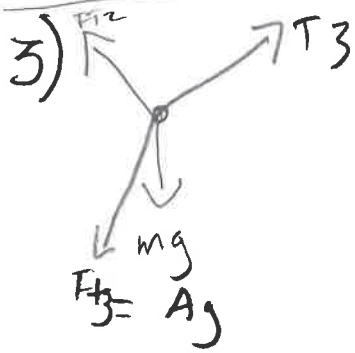
3)



$T_{2y} = T_{1y} = T\cos\theta$

$\Sigma F_y = -mg - A_g + T_1\cos\theta + T_2\cos\theta$

$mg + A_g = T_1\cos\theta + T_2\cos\theta$

$\boxed{m = \dfrac{T_1\cos\theta + T_2\cos\theta - A_g}{g}}$

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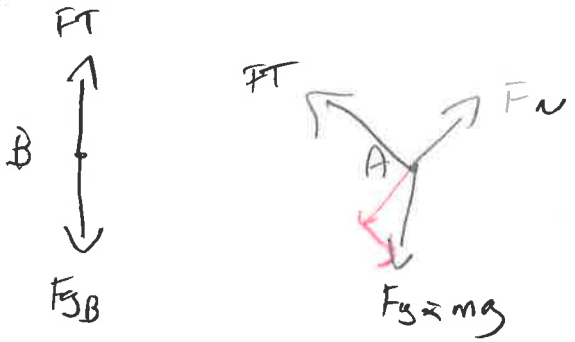
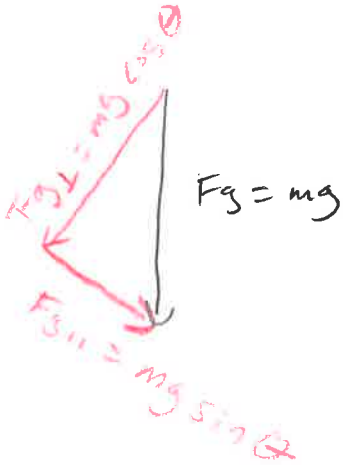
4)

4)

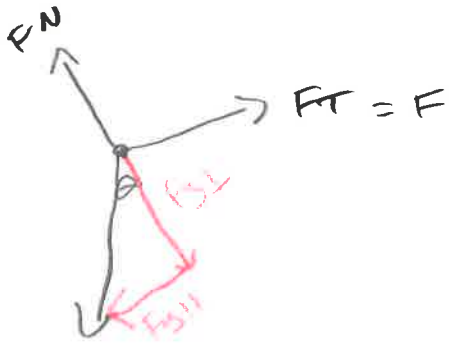


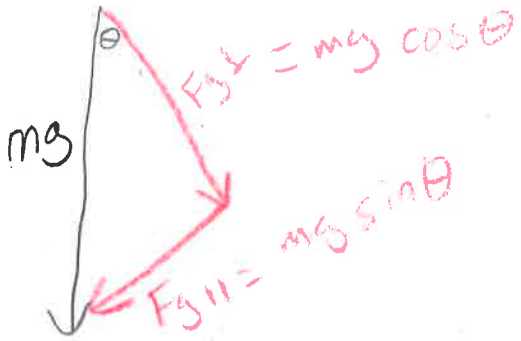


$$\Sigma F_{\parallel} = F_T - mg \sin\theta = 0$$

$$F_T = mg \sin\theta \longrightarrow \boxed{F_{gB} = F_T = mg \sin\theta}$$

5)





$$\Sigma F_{\parallel} = F - mg \sin\theta = 0$$

$$F = mg \sin\theta \Rightarrow \boxed{m = \frac{F}{g \sin\theta}}$$