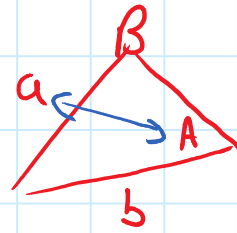# Translational Equilibrium II

Thursday, March 9, 2017   1:51 PM

Sin law $\dfrac{a}{\sin A} = \dfrac{b}{\sin B}$
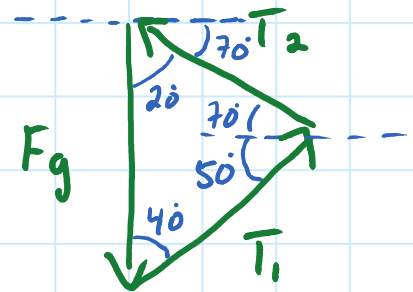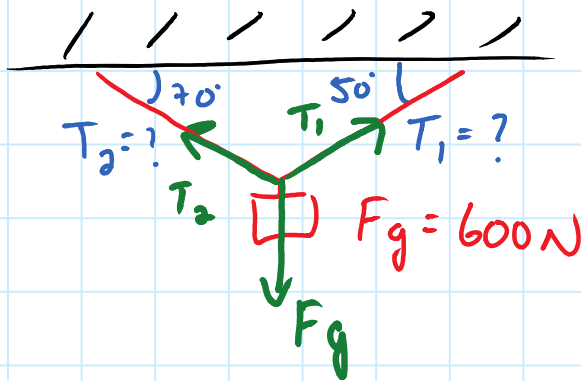
Cos law $a^2 = b^2 + c^2 - 2bc\cos A$

To solve

1) Draw F.B.D.
2) Add vectors so $\Sigma F = 0$
3) Add angles to vector diagram
4) Solve for the unknowns using sin/cos law

Ex

$T_2 = ?$ $T_1 = ?$ $F_g = 600\,N$

$\dfrac{F_g}{\sin 120°} = \dfrac{T_1}{\sin 20°}$ $T_1 = 237\,N$ $T_2 \approx 445\,N$

$\dfrac{600}{\sin 120°} = \dfrac{T_1}{\sin 20°}$ $\dfrac{600}{\sin 120°} = \dfrac{T_2}{\sin 40°}$

Ex:
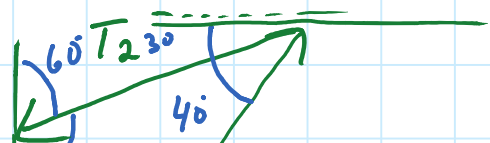
Ex:
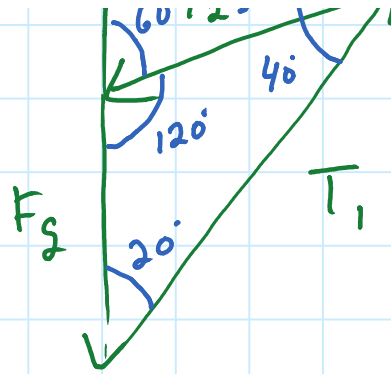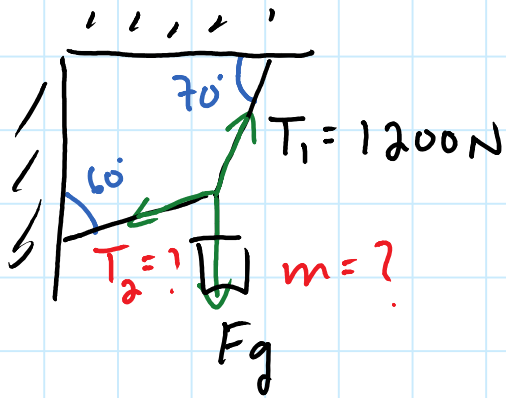
$$\frac{T_1}{\sin 120°} = \frac{F_g}{\sin 40}$$

$$\frac{1200}{\sin 120°} = \frac{F_g}{\sin 40°}$$

$$F_g = 891 N, \quad m = 91 kg$$

$$\frac{T_2}{\sin 20°} = \frac{1200}{\sin 120°}$$

$$T_2 = 474 N$$