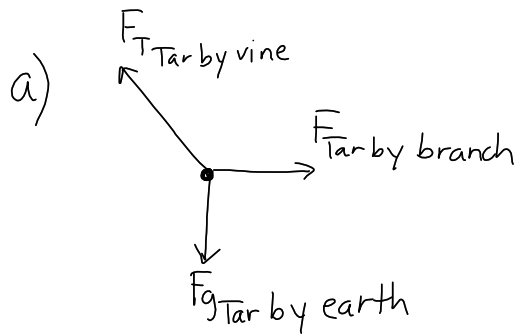
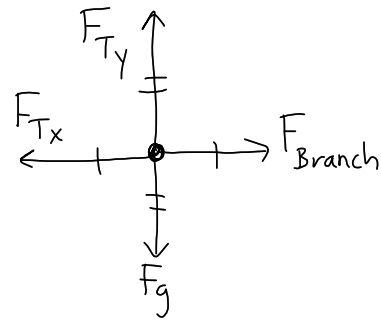
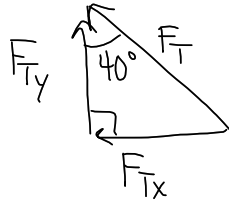


Detailed Solution Steps for Worksheet 3 #7



Then resolve vectors into components and draw again.



b) $F_{Ty} = F_g$

$$\cos 40^\circ (F_T) = mg$$

c) $F_{Tx} = F_{\text{Branch}}$

$$\sin 40^\circ (F_T) = F_{\text{Branch}}$$

★ Use triangle/trig to substitute

d) $m = 75 \text{ kg}$

$$F_g = mg = (75 \text{ kg})(10 \text{ N/kg}) = 750 \text{ N}$$

e) use equation from vertical forces

$$\cos 40^\circ (F_T) = mg$$

$$F_T = \frac{mg}{\cos 40^\circ} = \frac{750 \text{ N}}{\cos 40^\circ}$$

$$F_T = 980 \text{ N}$$

f) use equation from horizontal

$$\sin 40^\circ (F_T) = F_{\text{Branch}}$$

$$F_{\text{Branch}} = \sin 40^\circ (980 \text{ N})$$

$$F_{\text{Branch}} = 630 \text{ N}$$