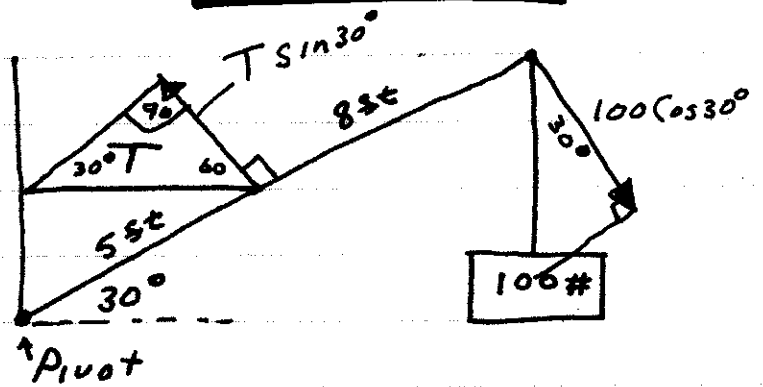


20080303.1713

Answer

Find Tension T
in pounds.



(Assume equilibrium)

$$\begin{aligned}\sum T_{cw} &= \sum T_{ccw} \\ (100 \#)(\cos 30^\circ)(5 \text{ ft} + 8 \text{ ft}) &= (T \sin 30^\circ)(5 \text{ ft}) \\ (50 \#)(\sqrt{3})(13 \text{ ft}) &= .5T(5 \text{ ft}) \\ (100 \#)(\sqrt{3})(13 \text{ ft}) &= T(5 \text{ ft})\end{aligned}$$

$$T = \frac{(100 \#)(\sqrt{3})(13 \text{ ft})}{(5 \text{ ft})}$$

$$T = (20 \#)(\sqrt{3})(13)$$

$$T = 260\sqrt{3} \#$$

$$T = 450.33321 \#$$

$$T = 450 \text{ pounds}$$