

a) $v = 50.0 \text{ m/s}$

$$\mu = \frac{0.600 \text{ kg}}{5.0 \text{ m}} = .012 \text{ kg/m}$$

$$v = \sqrt{\frac{F}{\mu}}$$

$$50 \text{ m/s} = \sqrt{\frac{F}{.012 \text{ kg/m}}}$$

$$F = 30.0 \text{ N}$$

b) $T = 8.00 \text{ N}$

$$\mu = .012 \text{ kg/m}$$

$$v = \sqrt{\frac{F}{\mu}} = \sqrt{\frac{8.00 \text{ N}}{.012 \text{ kg/m}}}$$

$$v = 25.8 \text{ m/s}$$