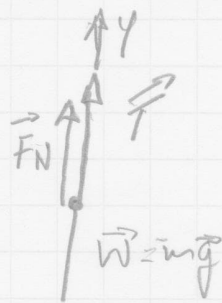
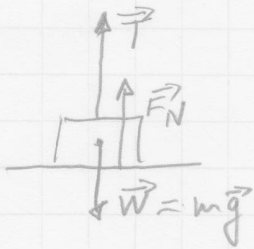


1.



$$T = 50 \text{ N}$$

$$m = 8 \text{ kg}$$

Sum of the forces in the y-direction = 0. No moving

$$T + F_N + W = T + F_N - mg = 0$$

$$F_N = mg - T = (8 \text{ kg})(9.8 \text{ m/s}^2) - 50 \text{ N}$$

$$\boxed{F_N = 28.4 \text{ N}}$$

2.



The more rope that is on the table; the more weight of rope is on the table; the greater the normal force is  $\frac{1}{2}$  therefore the normal force is greater.

Also the less rope over the edge the less weight pulling on the rope, therefore

The tension is low to start

As more rope hangs off the side the tension increases as long as the rope is not moving.

Tension increases

Eventually, the rope will start sliding. moving faster  $\frac{1}{2}$  faster as the friction decreases  $\frac{1}{2}$  the weight over the edge decreases.