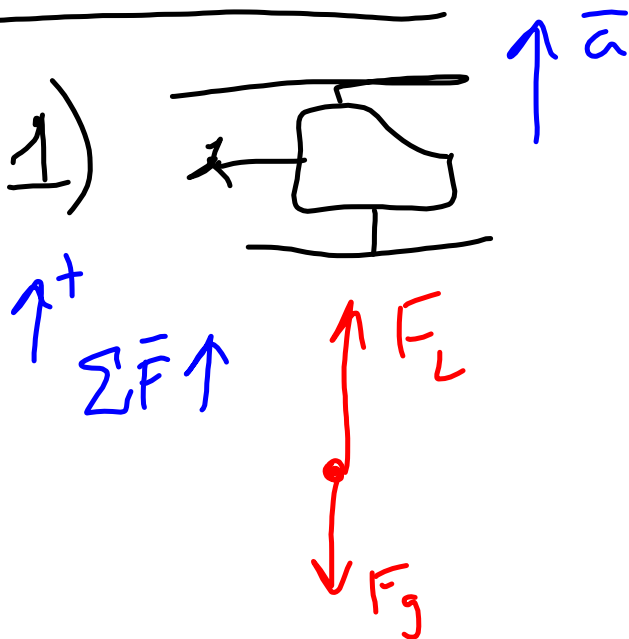


Worksheet 2



$$F_g = mg$$

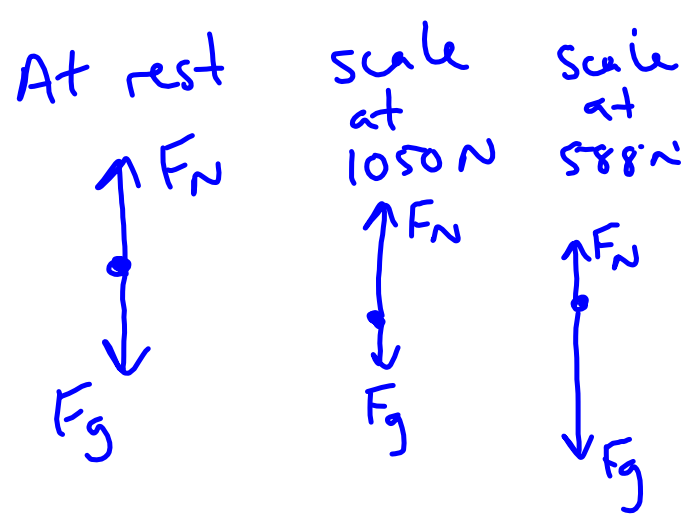
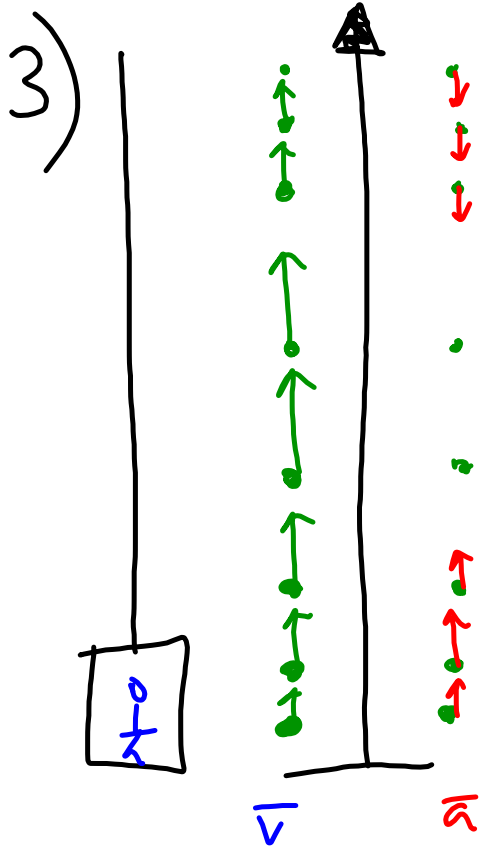
$$\Sigma \vec{F} = m\vec{a}$$

$$F_L - F_g = ma$$

$$F_L = mg + ma$$

$$= (4600 \text{ kg})(9.8 \text{ m/s}^2 + 2 \text{ m/s}^2)$$

$$= 54280 \text{ N}$$



$$F_g = m a_g$$

$$m = \frac{F_g}{a_g} = \frac{840 \text{ N}}{9.8 \text{ m/s}^2} = 85.71 \text{ kg}$$

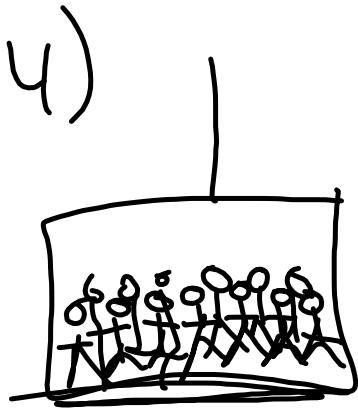
$$\sum \vec{F} = m \vec{a}$$

$$F_N - F_g = m \vec{a}$$

$$a = \frac{F_N - F_g}{m}$$

$$= \frac{1050 \text{ N} - 840 \text{ N}}{85.71 \text{ kg}}$$

$$= 2.45 \text{ m/s}^2$$



$$(20 \text{ people})(75 \text{ kg/person})$$

$$+ 500 \text{ kg} = 2000 \text{ kg}$$

$$F_g = (2000 \text{ kg})(9.8 \text{ m/s}^2) = 19600 \text{ N}$$

$$\text{Max } F_T = 30000 \text{ N}$$

$$\Sigma \vec{F} = m\vec{a}$$

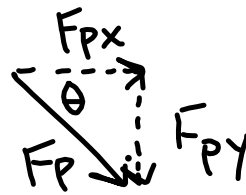
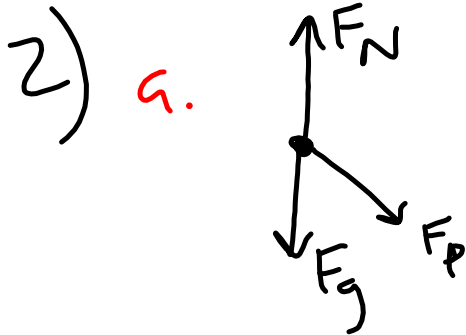
$$F_T - F_g = Ma$$

$$a = \frac{F_T - F_g}{M}$$

$$= \frac{30000 \text{ N} - 19600 \text{ N}}{2000 \text{ kg}}$$

$$= 5.2 \text{ m/s}^2$$

Worksheet 4



$$\sin(20^\circ) = \frac{F_{Py}}{F_P}$$

$$F_{Py} = F_P \sin(20^\circ)$$
$$= 8.55 \text{ N}$$

b.

$$\cos(20^\circ) = \frac{F_{Px}}{F_P}$$
$$F_{Px} = F_P \cos(20^\circ)$$
$$= 23.5 \text{ N}$$