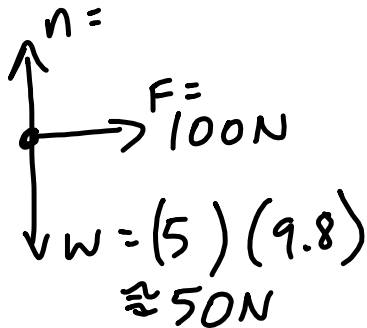


"force" means Net force or ΣF .



$$F = ma \quad \text{says}$$

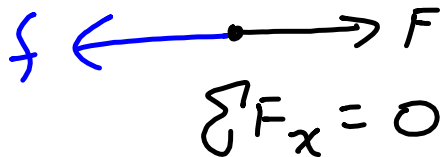
$$\frac{F}{m} = a$$

$$\frac{100}{5} = a$$

$$20 \text{ m/s}^2 = a$$

But, if it's at a constant vel.
What must be happening?

Not taking f into
consideration.



$$\Sigma F_x = 0$$

d.

d.

$$\sum F = 25\text{N}$$

$$m = 5\text{kg}$$

$$a = ?$$

$$\sum F = ma$$

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

$$\frac{25\text{N}}{5\text{kg}} = a$$

$$5\text{ m/s}^2$$

$$F = ?$$

$$m = 370\text{kg}$$

$$a = 2.3\text{ m/s}^2$$

$$F = ma$$

$$= (370)(2.3)$$

$$= 736\text{N}$$

$$F = 45\text{N}$$

$$a = 7.5\text{ m/s}^2$$

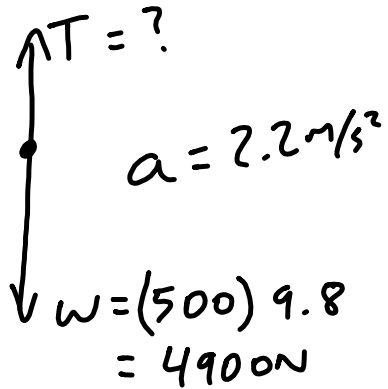
$$m = ?$$

$$F = ma$$

$$\frac{F}{a} = m$$

$$\frac{45\text{N}}{7.5\text{ m/s}^2} = m$$

$$6\text{ kg} =$$



A free-body diagram showing a mass with two forces acting on it: an upward force labeled $T = ?$ and a downward force labeled $W = (500) 9.8 = 4900 \text{ N}$. To the right of the diagram, the acceleration is given as $a = 2.2 \text{ m/s}^2$.

$$\sum F_y = T - W$$

$$\sum F_y = m a$$

$$\sum F_y = (500) 2.2$$

$$\sum F_y = 1100 \text{ N}$$

$$\sum F_y = T - W$$

$$\sum F_y + W = T$$

$$1100 + 4900 = T$$

$$\underline{6000 \text{ N} = T}$$

$$\uparrow F_{\text{thrust}} = 60,000 \text{ N}$$

$$\downarrow W = (2500)9.8 \\ = 24500 \text{ N}$$

$$a = ?$$

$$\Sigma F = ma$$

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

$$\Sigma F_y = F_{\text{thrust}} + W$$

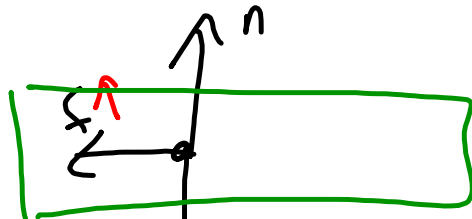
$$\Sigma F_y = 60,000 - 24,500$$

$$\Sigma F_y = 35,500 \text{ N}$$

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

$$\frac{35,500}{2500} = a$$

$$14.2 \text{ m/s}^2$$



$$\sum F_x = -8820 \text{ N}$$

$$W = (1200) 9.8$$

$$N = W = 11760 \text{ N}$$

$$\mu = 0.75$$

$$f = \mu n$$

$$f = (11760)(0.75)$$

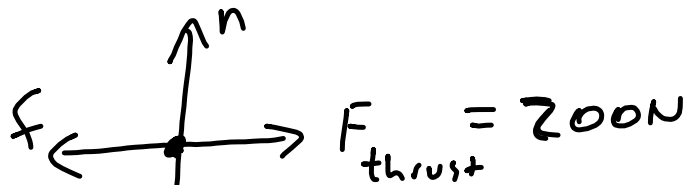
$$f = 8820$$

$$\sum F = ma$$

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

$$\frac{-8820}{1200} = a$$

$$-7.35 = a$$



$$w = (32.5 \text{ Kg}) 9.8$$

$$n = w = 318.5 \text{ N}$$

$$a = 4.2 \text{ m/s}^2$$

$$\mu = ?$$

$$f = \mu n$$

$$\frac{f}{n} = \mu$$

$$\sum F_x = F + (-f)$$

$$\sum F_x - F = -f$$

$$\begin{aligned} \sum F_x &= ma \\ &= (32.5)(4.2) \\ &= 136.5 \end{aligned}$$

$$136.5 - 200 = -f$$

$$-63.5 = -f$$

$$\frac{63.5}{318.5} = \mu$$

$$\underline{0.199 = \mu}$$