CROSS HATCHING

USUALLY REPRESENTS A FIXED SURFACE.

FBD = FREE BODY DIAGRAM

A ≠ a

$m = 5\,kg$

$W = mg = (5)(9.81) = 49.05\,N$

F_N

N → NORMAL

W → Weight of any object = mass (kg) x "g" m/s^2

$= -9.81$

TOTAL FORCE ON BOX IN THE "X" DIRECTION = NET FORCE IN "X" DIRECTION

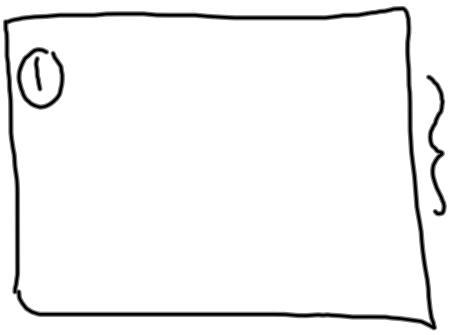
$= +80N$

$\sum F_x's = ma_x$ (NET FORCE)

$+80N = ma_x$

$+80 = 5a_x$

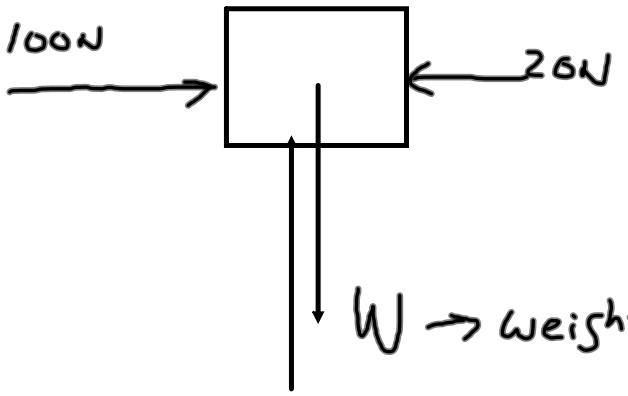
$a_x = 16\,m/s^2$



FOR TOMORROW'S TEST ALL WORK RELATING TO ANY GIVEN PROBLEM MUST BE BOXED/LABELED.

SI = MKS

$m = 5\ kg$



W → weight, measured in Newtons

$W = mg = (5\ kg)(9.8\ \frac{m}{s^2})$

F_N

$= 49.05\ N$

$1\ N = (1\ kg)(1\ \frac{m}{s^2})$

$\Sigma F's_x = ma_x$

NET FORCE

5 kg

$+100N - 20N = ma_x$

80 N

$80N = 5\ kg(a_x)$

$a_x = 16\ m/s^2$

125 MPH → TERMINAL VELOCITY

HOW LONG DOES IT TAKE TO GET TO THIS SPEED?

$$\left(\frac{125\ \text{MILE}}{\text{HOUR}}\right)\left(\frac{1609\ \text{M}}{\text{MILE}}\right)\left(\frac{\text{HR}}{3600\text{S}}\right) \approx 55.87\ \text{M/S} = V_f$$

$$V_{AVG} = \frac{V_f + V_i}{2} \qquad a = \frac{V_f - V_i}{\Delta t}$$

$$\Delta t = \frac{V_f - V_i}{a} = \frac{-55.87\ \text{M/S}}{-9.81\ \text{M/S}^2} = 5.7\text{S}$$

$$V_f = a\,\Delta t$$