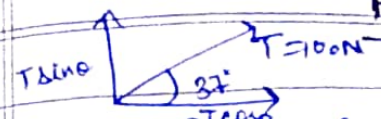
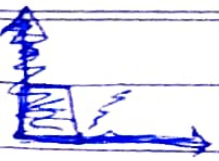
HOME ASSIGNMENT





Sol:1 Horizontal force = 100N

Mass ~~of~~ of box and books = 40 kg

$T\cos\theta = f$

$\Rightarrow T\cos\theta = ma$

$\Rightarrow 100 \times \cos 37^\circ = 40a$

$\Rightarrow 100 \times \frac{4}{5} = 40a$

$\Rightarrow a = 2\ m/s^2$

$N + T\sin\theta = mg$

$\Rightarrow N + 100 \times \sin 37^\circ = 40 \times 10$

$\Rightarrow N + 100 \times \frac{3}{5} = 40 \times 10$

$\Rightarrow N + 60 = 400$

$\Rightarrow N = 340\ N$

Sol:2 (a) Yes, earth exerts gravitational force on every particle near its surface.

(b) It is a long-range force.

(c) Mag Magnitude of this force

when mass is m is $F = mg$

The direction of this force is always downwards.

(d) (1) gravitational force on A :-

mass = 2kg

$g = 9.8\ m/s^2$

$F = mg \Rightarrow F = 2 \times \frac{98}{10} = 19.6\ N$

gravitational force on B :-

mass = 10 kg

$g = 9.8\ m/s^2$

$F = mg = 10 \times \frac{98}{10} = 98\ N$

(2) Acceleration on falling object A

$= g = 9.8\ m/s^2$

Acceleration on falling object B

$= g = 9.8\ m/s^2$