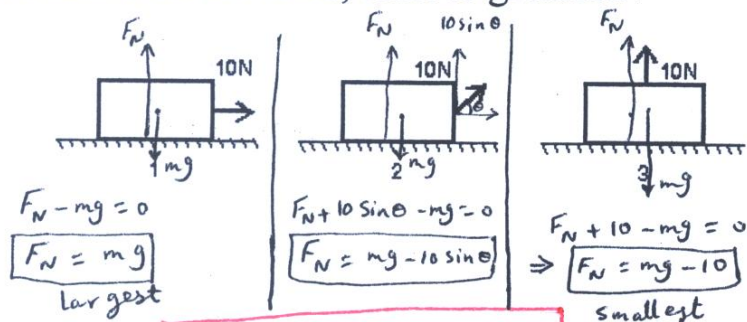


key

Name:

ID #

1- A box rests on a horizontal surface and a man pulls on it with a 10-N force. Rank the situations shown below according to the magnitude of the normal force exerted by the surface on the crate, least to greatest.



$$(F_N)_3 < (F_N)_2 < (F_N)_1$$

2- A 9000 kg automobile is pushed along a level road by a group of students who apply a total forward force of 500 N. Neglecting friction, calculate the acceleration of the automobile.

$$F = ma$$

$$a = \frac{F}{m} = \frac{500 \text{ N}}{9000 \text{ kg}} = 0.056 \frac{\text{m}}{\text{s}^2}$$

3- What average force is required to stop a 1000 kg in 10 s, if it is traveling initially with a speed of 15 m/s?

$$F = ma = 1000 a$$

find the acceleration:

$$v_f = 0, v_0 = 15 \frac{\text{m}}{\text{s}}, t = 10 \text{ s}, a = ?!$$

$$v_f = v_0 + at \Rightarrow a = \frac{-v_0}{t} = \frac{-15}{10} = -1.5 \frac{\text{m}}{\text{s}^2}$$

$$F = 1000 a = 1000 (-1.5) = -1500 \text{ N}$$