Answer on Question#39776 – Physics – Other

a 5kg block is pulled acroos a table by a horizontal force 40N with frictional force of 8N opposing the motion. Calculate the acceleration of thee object..."

Solution:

$F_1 = 40\text{N} - \text{hotizontal force};$

$F_{frict} = 8\text{N} - \text{frictional force};$

$m = 5\text{kg} - \text{mass of the block};$

Newton's second law for the block (initial position):

x: $F_1 - F_{frict} = ma \qquad (1)$

$$a = \frac{F_1 - F_{frict}}{m} = \frac{40\text{N} - 8\text{N}}{5\text{kg}} = 6.4\frac{m}{s^2}$$

Answer: acceleration of the object is equal to $6.4\frac{m}{s^2}$.