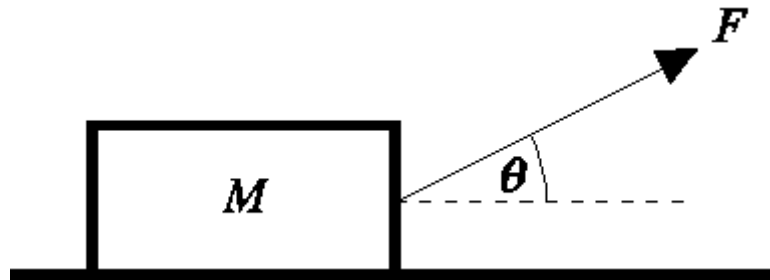# Answer on Question #51821, Physics, Mechanics | Kinematics | Dynamics

A child pulls on a 90 N wagon with a force of 100 N at 37º above the horizontal. Calculate the acceleration of the wagon. Assume that friction is negligible.

(a) 8.7m/s²

(b) 9.6m/s²

(c) 3.4m/s²

(d) 7.1m/s²

Solution:

The force along x axis is

$$F_x = F \cos \theta = 100 * \cos 37° = 79.86 \text{ N}$$

The magnitude of force is equated to the product of the mass times the acceleration

$$F_x = ma$$

The mass is

$$m = \frac{P}{g} = \frac{90}{9.81} = 9.17 \text{ kg}$$

Thus,

$$a = \frac{F_x}{m} = \frac{79.86}{9.17} = 8.7 \text{ m/s}^2$$

Answer: (a) 8.7m/s²