

**Answer on Question #67203-Physics-Other**

A box with a mass of 8 kg placed on an inclined frictionless plane at an angle of  $\alpha$ . A force of 50 N pulls it up along the surface. Calculate the acceleration and tension of the box

**Solution**

$$ma = T - mg \sin \alpha$$

The tension of the box is

$$T = 50 \text{ N}.$$

The acceleration of the box is

$$a = \frac{T}{m} - g \sin \alpha = \frac{50}{8} - 10 \sin \alpha = (12.5 - 10 \sin \alpha) \frac{m}{s^2}.$$

Answer provided by <https://www.AssignmentExpert.com>