

### Answer on Question #72727 - Physics / Other

A box with a mass of  $m = 6.0 \text{ kg}$  is thrown on the floor, slides, and stops. If the initial velocity was  $v = 8 \text{ m/s}$  and the friction coefficient  $\mu = 0.30$ , calculate the distance  $s$  travelled by the box before it stopped.

**Solution:**

The change of energy=work done

$$\frac{mv^2}{2} = F_{\text{frict}}s$$

$$\frac{mv^2}{2} = \mu mgs$$

Thus

$$s = \frac{v^2}{2\mu g}$$

$$s = \frac{8^2}{2 \times 0.30 \times 9.8} = 10.9 \text{ m}$$

**Answer:** 10.9 m

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