

Given:

$$m = 2500 \text{ kg}$$

$$v_1 = 14 \frac{\text{m}}{\text{s}}$$

$$d = 25 \text{ m}$$

Need to find: μ - ?

Solving:

$$F_t = F_N = ma \Rightarrow$$

$$\Rightarrow -\mu mg = \frac{m(v_t^2 - v_1^2)}{2d}, \text{ where } v_t = 0.$$

So, we will have:

$$\begin{aligned} -\frac{m(v_t^2 - v_1^2)}{2d} &= \mu mg \Rightarrow \\ \Rightarrow -\frac{(v_t^2 - v_1^2)}{2d} &= \mu g \Rightarrow \mu = -\frac{(v_t^2 - v_1^2)}{2gd} = \frac{v_1^2}{2gd} = \frac{14^2}{2 \cdot 9.8 \cdot 25} = \frac{196}{490} = 0.4. \end{aligned}$$

Answer: 0.4.