

PP1168 (from HW)

6. $m = 1.2 \times 10^3 \text{ kg}$

$\vec{v}_1 = 45 \text{ km/h [W]}$

$v_2 = 0$

$\Delta d = 35 \text{ m}$

$\mu = ???$

$\vec{F}_{\text{net}} = m\vec{a}$

$-F_f = ma$

← what is acc?

- ① acc
- ② F_f
- ③ m

① Find acceleration:

$$v_2^2 = v_1^2 + 2ad$$

$$\frac{v_2^2 - v_1^2}{2ad} = a$$

$$a = \frac{0 - (12.5 \text{ m/s})^2}{2(35 \text{ m})}$$

$$a = -2.232 \text{ m/s}^2$$

② Find F_f :

$$\vec{F}_{\text{net}} = m\vec{a}$$

$$-F_f = ma$$

$$F_f = -ma$$

$$F_f = -(1.2 \times 10^3 \text{ kg})(-2.232 \text{ m/s}^2)$$

$$F_f = 2678.57 \text{ N}$$

③ find μ :

$$F_f = \mu F_N$$

$$\mu = \frac{F_f}{F_N}$$

$$\mu = \frac{2678.57 \text{ N}}{(1.2 \times 10^3 \text{ N})(9.81 \text{ m/s}^2)}$$

$$\mu = 0.23$$

To DO:

① PP1168 - Finish if not done!

② Forces in 1D Animation - Passion (TUESDAY)

③ Calculator Pad \Rightarrow Newton's Laws

Start + keep going.....