

Quiz 3c

Note Title

27/09/2012

1) A student is gliding along on the physics scooter at a comfortable 2.8 m/s when Mr Trask walks around the corner and the two collide. If the student is brought to rest in 0.15 s , what is their acceleration?

2) A car is moving at 30.0 km/h when it accelerates at 2.0 m/s^2 for 3.6 s . What is the car's final speed?

1.) $a = ?$

wait... what?
why negative? ..

$$\Delta V = V - V_0 = 0 - 2.8 \text{ m/s}$$

$$= -2.8 \text{ m/s}$$

$$t = 0.15 \text{ s}$$

$$a = \frac{\Delta V}{t} = -\frac{2.8 \text{ m/s}}{0.15 \text{ s}}$$

$$= \boxed{-19 \text{ m/s}^2}$$

2.) $a = 2.0 \text{ m/s}^2$

$$\Delta V = ?$$

$$t = 3.6 \text{ s}$$

$$a = \frac{\Delta V}{t}$$

$$\Delta V = a \cdot t = (2.0 \text{ m/s}^2)(3.6 \text{ s})$$

$$= 7.2 \text{ m/s}$$

$$V_0 = 30 \text{ km/h} \div 3.6$$
$$= 8.333 \text{ m/s}$$

$$\Delta V = V - V_0$$

$$+V_0 \quad +V_0$$

$$V = V_0 + \Delta V$$

$$= 8.333 + 7.2$$

$$= \boxed{15 \text{ m/s}}$$