

Quiz 3a

Note Title

27/09/2012

1) The Dodge Tomahawk can accelerate at an incredible 15.9 m/s^2 . How much time will it take to accelerate from 0 to 100.0 km/h ?

2) A rock is falling downwards at 12.0 m/s . After 2.0 seconds it is falling at downwards at 31.6 m/s . What was its acceleration?



Allpar.com photo

$$1.) \quad a = 15.9 \text{ m/s}^2$$

$$\Delta v = v - v_0 = 100 \text{ km/h} \div 3.6 = 27.78 \text{ m/s} \checkmark$$

$$t = ?$$

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

$$at = \Delta v$$

$$t = \frac{\Delta v}{a} \checkmark$$
$$= \frac{27.78 \text{ m/s}}{15.9 \text{ m/s}^2}$$

$$= \boxed{1.75 \text{ s}} \checkmark$$

$$2.) \quad a = ?$$

$$\Delta v = -31.6 - (-12.0) = -19.6 \text{ m/s}$$

$$t = 2.0 \text{ s}$$

$$a = \frac{\Delta v}{t} = \frac{-19.6 \text{ m/s}}{2.0 \text{ s}} \checkmark$$

$$= \boxed{\begin{array}{c} -9.8 \text{ m/s}^2 \\ \text{or} \\ 9.8 \text{ m/s}^2 \text{ down} \end{array}} \checkmark$$