

PHYS101.15
QUIZ#2- CHAPTER 2
DATE: 15/3/09

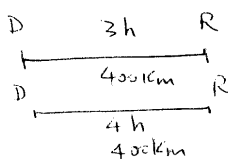
Name: _____

Key

Id#: _____

A car starts a trip from Dammam, goes 400 km in a straight line to Riyadh in 3.0 hours. Immediately, the car is turned around, and returns to Dammam in 4.0 hours.

- (a) Find the displacement of the car for the whole trip.
(b) Find the average speed of the car for the whole trip
(a) Find the average velocity of the car for the whole trip.



a) $\text{Displacement} = X_f - X_i = 0$

b) $S_{\text{avg}} = \frac{\text{distance}}{\text{time}} = \frac{800 \text{ km}}{7 \text{ h}} = 114 \text{ km/h}$

c) $V_{\text{avg}} = \frac{\text{Displacement}}{\text{time}} = \frac{0}{7 \text{ h}} = 0 \text{ km/h}$

PHYS101.14
QUIZ#2- CHAPTER 2
DATE: 17/3/09

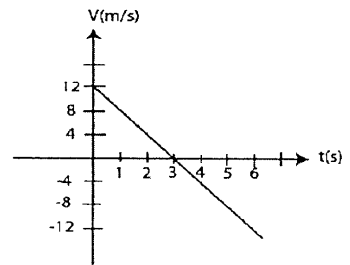
Name: _____

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A particle starts from $x_0 = 5.0$ m at time $t_0 = 0$. Its velocity as a function of time is as shown in Fig 1.

- (a) Find the position of the particle at $t = 6.0$ s.
(b) The acceleration of the particle at $t = 3.0$ s.



a) $X - X_0 =$ area under the curve

$$X - 5 = \frac{1}{2} (12 \times 3) + \frac{1}{2} (-12 \times 3) = 0$$

$$\Rightarrow \boxed{X = 5 \text{ m}}$$

b) $a = \text{slope} = \frac{-12 - 12}{6} = -\frac{24}{6} = \boxed{-4 \text{ m/s}^2}$

PHYS101.13
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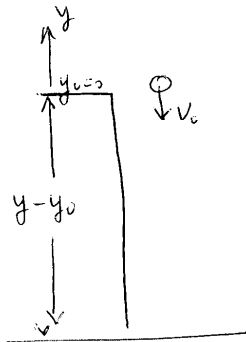
Name:

Key

Id#:

A stone is thrown downward from height (h) above the ground with an initial speed of 10 m/s. It strikes the ground 3.0 seconds later.

- (a) Determine the height h.
(b) What is the velocity of the stone just before it hits the ground?
(c) What is the acceleration of the stone just before its hits the ground?



$$\begin{aligned} \text{a) } y - y_0 &= v_0 t - \frac{1}{2} g t^2 \\ &= -10 \times 3 - 4.9 \times 9 = -74.1 \text{ m} \end{aligned}$$

$$\boxed{h = 74.1 \text{ m}}$$

$$\text{b) } v = v_0 - g t = -10 - 9.8 \times 3 = \boxed{-39.4 \text{ m/s}}$$

$$\text{c) } a = -g = \boxed{-9.8 \text{ m/s}^2}$$