

p 34 MC 2, 5, 9

①

p 38 Concept 23
Problem 28, ³³35, 51, ~~52~~

(9 pts)

- Multiple Choice

2) Scalar - no direction

(b) average speed, path length, clock

(3)

5) $x = +12 - 4t + t^2$

NOT True?

$$y = y_0 + v_0 t + \frac{1}{2} a t^2$$

$$y_0 = +12 \quad v_0 = -4 \quad a = +2$$

a) object accel ✓

NOT True

→ b) speed Always decrease

c) first moves negative, then pos $-v_0, +a$

d) $a = +2$

e) stop at 2 s for instant

9) West 12 m/s, 20 m away light apply brakes
Signs?

x_0 + (right of origin)

v_{0x} - (travel west)

a_x + (oppose motion)

- Concept

23) non zero vel + zero accel.?

(1) Yes the object could be traveling w/ constant speed

- Problem

28) $\bar{v}_1 = 2.01 \text{ m/s}$ first half $\bar{v}_2 = ?$ $\bar{v}_{\text{tot}} = 2.05 \text{ m/s}$

$$\bar{v}_{\text{tot}} = \frac{\bar{v}_1 + \bar{v}_2}{2}$$

$$\begin{aligned} \bar{v}_2 &= 2(\bar{v}_{\text{tot}}) - \bar{v}_1 \\ &= 2(2.05 \text{ m/s}) - 2.01 \text{ m/s} \\ &= 2.09 \text{ m/s} \end{aligned}$$

33) $v_0 = 16 \text{ m/s}$ east $a = +1.0 \text{ m/s}^2$ $t = 5.0 \text{ s}$

A) What can you determine

- distance truck traveled
- velocity of truck @ end of time interval

$$B) v_f = v_0 + at = (16 \text{ m/s}) + (1.0 \text{ m/s}^2)(5.0 \text{ s}) = 21 \text{ m/s}$$

$$C) d = v_0 t + \frac{1}{2} at^2 = (16 \text{ m/s})(5 \text{ s}) + \frac{1}{2}(1.0 \text{ m/s}^2)(5 \text{ s})^2 = 92.5 \text{ m}$$

D) $v_{02} = 21 \text{ m/s}$ $a_2 = -2 \text{ m/s}^2$ $t_2 = 3 \text{ s}$

What can you determine?

- final velocity
- total distance
- displacement during

$$e) v_f = ? \quad v_f = v_0 + at = (21 \text{ m/s}) + (-2 \text{ m/s}^2)(3 \text{ s}) \\ = 15 \text{ m/s}$$

$$f) \Delta x = ? \quad \Delta x = v_0 t + \frac{1}{2} at^2 \\ = (21 \text{ m/s})(3 \text{ s}) + \frac{1}{2}(-2 \text{ m/s}^2)(3 \text{ s})^2 \\ = 54 \text{ m}$$

$$g) X_{\text{total}} = ? \quad X_{\text{tot}} = X_1 + X_2 \\ = (92.5 \text{ m}) + (54 \text{ m}) \\ = 146.5 \text{ m}$$

$$35) \quad a = +2 \text{ m/s}^2 \quad a) \quad x = \cancel{x_0} + \cancel{v_0 t} + \frac{1}{2} at^2 \\ t = 5.0 \text{ s} \\ x = ? \quad = \frac{1}{2}(2 \text{ m/s}^2)(5 \text{ s})^2 \\ = 25 \text{ m}$$

b) Assumptions? The bus started from rest @ intersection

c) not true? Bus farther

$$51) \quad v_0 = 36 \text{ km/hr} \quad \textcircled{1} \quad \frac{36 \text{ km}}{\text{hr}} \left(\frac{1 \text{ hr}}{3600 \text{ s}} \right) \left(\frac{10^3 \text{ m}}{1 \text{ km}} \right) = 10 \text{ m/s} \\ x = ?$$

$$v = 0 \text{ m/s}$$

$$a = 1.2 \text{ m/s}^2$$

$$\textcircled{2} \quad x = \frac{v^2 - v_0^2}{2a} = \frac{-(10 \text{ m/s})^2}{2(1.2 \text{ m/s}^2)} \\ = 42 \text{ m}$$