

Pg 51

Displacement w/ constant Acc. = $\Delta x = \frac{1}{2} (v_i + v_f) \Delta t$

#1.

- ① $a = \text{constant}$
- $v_f = 6.6 \text{ m/s}$
- $v_i = 0 \text{ m/s}$
- $\Delta t = 6.5 \text{ sec}$
- $\Delta x = \text{ ______ m}$

② $\Delta x = \frac{1}{2} (v_i + v_f) \Delta t$

③ $\Delta x = \frac{1}{2} (0 + 6.6 \text{ m/s}) \cdot 6.5 \text{ sec}$

$\Delta x = 3.3 \text{ m/s} \cdot 6.5 \text{ sec}$

$\Delta x = 21.5 \text{ m}$

#2.

- ① $a = \text{constant}$
- $v_f = 0 \text{ m/s}$
- $v_i = 15 \text{ m/s}$
- $\Delta t = 2.50 \text{ sec}$
- $\Delta x = \text{ ______ m}$

② $\Delta x = \frac{1}{2} (v_i + v_f) \Delta t$

③ $\Delta x = \frac{1}{2} (15 \text{ m/s} + 0) \cdot 2.5 \text{ sec}$

$\Delta x = 7.5 \text{ m/s} \cdot 2.5 \text{ sec}$

$\Delta x = 18.8 \text{ m}$

#3.

- ① $a = \text{constant/uniform}$
- $v_f = 0 \text{ m/s}$
- $v_i = 21.8 \text{ m/s}$
- $\Delta t = \text{ ______ sec}$
- $\Delta x = 99 \text{ m}$

② $\Delta x = \frac{1}{2} (v_i + v_f) \Delta t$

③ $99 \text{ m} = \frac{1}{2} (21.8 \text{ m/s} + 0 \text{ m/s}) \cdot \Delta t$

$99 \text{ m} = 10.9 \text{ m/s} \cdot \Delta t$

- Do opp. to get rid

$99 \text{ m} = 10.9 \text{ m/s} \cdot \Delta t$
 $\frac{99 \text{ m}}{10.9 \text{ m/s}} = \frac{10.9 \text{ m/s}}{10.9 \text{ m/s}} \cdot \Delta t$

$\Delta t = 9.1 \text{ s}$

#4 * 1 km = 1000m 1min = 60sec

- ① $a = \text{uniform/constant}$
- $v_f = \text{ ______ m/s}$
- $v_i = 6.4 \text{ m/s}$
- $\Delta t = 3.5 \text{ min} = 210 \text{ s}$
- $\Delta x = 3.2 \text{ km} = 3200 \text{ m}$

② $\Delta x = \frac{1}{2} (v_i + v_f) \Delta t$

③ $3200 \text{ m} = \frac{1}{2} (6.4 \text{ m/s} + v_f) \cdot 210 \text{ s}$

$3200 \text{ m} = \frac{1}{2} (6.4 + v_f) \cdot 210 \text{ s}$

Do the opp to isolate unknown.

$\frac{3200 \text{ m}}{210 \text{ s}} = \frac{1}{2} (6.4 \text{ m/s} + v_f) \cdot \frac{210 \text{ s}}{210 \text{ s}}$

$2 \cdot 15.24 \text{ m/s} = \frac{1}{2} (6.4 \text{ m/s} + v_f) \cdot 2$

$30.48 \text{ m/s} = 6.4 \text{ m/s} + v_f$
 $-6.4 \quad -6.4$

$v_f = 24.08 \text{ m/s}$