

#1 work example problem from page 55 first.

①

$$a = 0.5 \text{ m/s}^2$$

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

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

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

$$\Delta x = 6.32$$

②

$$V_f^2 = v_i^2 + 2 \cdot a \cdot \Delta x$$

③

$$V_f^2 = 0 + (2 \cdot 0.5 \frac{\text{m}}{\text{s}^2} \cdot 6.32 \text{ m})$$

$$V_f^2 = 6.32 \frac{\text{m}^2}{\text{s}^2}$$

$$\sqrt{V_f^2} = \sqrt{6.32 \frac{\text{m}^2}{\text{s}^2}} \quad \text{Square root}$$

$$[V_f = 2.51 \text{ m/s}]$$

#2

$$a = 0.8 \text{ m/s}^2$$

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

$$v_i = 7.0 \text{ m/s}$$

$$\Delta t =$$

$$\Delta x = 245 \text{ m}$$

②

$$V_f^2 = v_i^2 + 2 \cdot a \cdot \Delta x$$

③

$$V_f^2 = (7.0 \text{ m/s})^2 + (2 \cdot 0.8 \frac{\text{m}}{\text{s}^2} \cdot 245 \text{ m})$$

$$V_f^2 = 49 \frac{\text{m}^2}{\text{s}^2} + 392 \frac{\text{m}^2}{\text{s}^2}$$

$$V_f^2 = 441 \frac{\text{m}^2}{\text{s}^2}$$

$$\sqrt{V_f^2} = \sqrt{441 \frac{\text{m}^2}{\text{s}^2}} \quad \text{sq. root}$$

$$a) [V_f = 21 \frac{\text{m}}{\text{s}}]$$

$$b) 16 \text{ m/s}$$

$$c) 13 \text{ m/s}$$

#3 Pg 56 Cont.

①
 (a) $a = 2.3 \text{ m/s}^2$
 $v_f = ?$
 $v_i = 0 \text{ m/s}$
 $\Delta t =$
 $\Delta x = 55 \text{ m}$

②
 $v_f^2 = v_i^2 + 2 \cdot a \cdot \Delta x$

③
 $v_f^2 = 0 + 2 \cdot (2.3 \text{ m/s}^2) \cdot (55 \text{ m})$

$$v_f^2 = 253 \text{ m}^2/\text{s}^2$$

$$\sqrt{v_f^2} = \sqrt{253 \text{ m}^2/\text{s}^2} \quad \text{Square Root}$$

$$[v_f = 15.9 \text{ m/s}]$$

③
 $v_f = v_i + (a \cdot \Delta t)$

$$15.9 \text{ m/s} = 0 \text{ m/s} + (2.3 \frac{\text{m}}{\text{s}^2} \cdot \Delta t)$$

$$15.9 \text{ m/s} = 2.3 \frac{\text{m}}{\text{s}^2} \cdot \Delta t$$

$$\frac{15.9 \text{ m/s}}{2.3 \text{ m/s}^2} = \frac{2.3 \text{ m/s}^2 \cdot \Delta t}{2.3 \text{ m/s}^2}$$

$$[6.9 \text{ s} = \Delta t]$$

#4 ①
 $a = 2.7 \text{ m/s}^2$
 $v_f = -1.5 \text{ m/s}$
 $v_i = -6.5 \text{ m/s}$
 $\Delta t =$
 $\Delta x =$

②
 $v_f^2 = v_i^2 + 2 \cdot a \cdot \Delta x$

③
 $(-1.5 \text{ m/s})^2 = (-6.5 \text{ m/s})^2 + 2 \cdot 2.7 \text{ m/s}^2 \cdot \Delta x$

$$-2.25 \text{ m}^2/\text{s}^2 = -42.25 \text{ m}^2/\text{s}^2 + 5.4 \text{ m/s}^2 \cdot \Delta x$$

$$-2.25 \text{ m}^2/\text{s}^2 = -42.25 \text{ m}^2/\text{s}^2 + 5.4 \text{ m/s}^2 \cdot \Delta x$$

$$-2.25 + 42.25 \frac{\text{m}^2}{\text{s}^2} = 5.4 \text{ m/s}^2 \cdot \Delta x$$

$$40 \frac{\text{m}^2}{\text{s}^2} = 5.4 \text{ m/s}^2 \cdot \Delta x$$

$$[\Delta x = 7.4 \text{ m}]$$

pg 56 cont.

#5

①

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

$$V_f = 33 \text{ m/s}$$

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

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

$$\Delta x = 240 \text{ m}$$

②

$$V_f^2 = V_i^2 + (2 \cdot a \cdot \Delta x) \quad (33 \text{ m/s})^2 = 0 + (2 \cdot a \cdot 240 \text{ m})$$

$$1089 \text{ m}^2/\text{s}^2 = 480 \text{ m} \cdot a$$

$$\frac{1089 \text{ m}^2/\text{s}^2}{480 \text{ m}} = \frac{480 \text{ m} \cdot a}{480 \text{ m}}$$

$$[2.3 \text{ m/s}^2 = a]$$

#6

①

$$a = 0.85 \text{ m/s}^2$$

$$V_f = 94 \frac{\text{km}}{\text{hr}} * = 26 \text{ m/s}$$

$$V_i = 83 \frac{\text{km}}{\text{hr}} * = 23 \text{ m/s}$$

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

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

②

$$V_f^2 = V_i^2 + 2 \cdot a \cdot \Delta x \quad (26 \text{ m/s})^2 = (23 \text{ m/s})^2 + 2 \cdot 0.85 \text{ m/s}^2 \cdot \Delta x$$

$$676 \text{ m}^2/\text{s}^2 = 529 \text{ m}^2/\text{s}^2 + 1.7 \text{ m/s}^2 \cdot \Delta x$$

$$147 \text{ m}^2/\text{s}^2 = 1.7 \text{ m/s}^2 \cdot \Delta x$$

$$\frac{147 \text{ m}^2/\text{s}^2}{1.7 \text{ m/s}^2} = \frac{1.7 \text{ m/s}^2 \cdot \Delta x}{1.7 \text{ m/s}^2}$$

$$[\Delta x = 86.5 \text{ m}]$$

③

*convert speed to m/s

$$\frac{94 \text{ km}}{\text{hr}} \left| \frac{1000 \text{ m}}{3600 \text{ s}} \right. = 26 \frac{\text{m}}{\text{s}}$$

$$\frac{83 \text{ km}}{\text{hr}} \left| \frac{1000 \text{ m}}{3600 \text{ s}} \right. = 23 \frac{\text{m}}{\text{s}}$$