9) $V_i = 40.0\ m/s$

$t = 5.2\ s$

$a = \frac{1}{2}g = (0.5)(9.81\ m/s^2) = 4.905\ m/s^2$

$V_f = ?$

$V_f = V_i + at$

$= 40.0\ m/s + (4.905\ m/s^2)(5.2\ s)$

$V_f = 65.506\ m/s \rightarrow \boxed{66\ m/s = V_f}$

10) $V_i = 0.50\ m/s$

$d = 56\ m$

$a = 2.3\ m/s^2$

$V_f = ?$

$V_f^2 = V_i^2 + 2ad$

$V_f^2 = (0.50\ m/s)^2 + 2(2.3\ m/s^2)(56\ m)$

$V_f^2 = 258.1\ m^2/s^2$

$\sqrt{V_f^2} = \sqrt{258.1\ m^2/s^2}$

$V_f = 16.065\ m/s$

$\boxed{V_f = 16\ m/s}$

Chapter 2

Physics Review for Final Exam

Formulas

$v = \frac{\Delta d}{\Delta t}$ $\quad \bar{v} = \frac{V_f + V_i}{2}$ $\quad V_f = V_i + at$ $\quad V_f^2 = V_i^2 + 2ad$

$d = \bar{v}t$ $\quad d = V_i t + \frac{1}{2}at^2$ $\quad a = \frac{\Delta v}{\Delta t}$ $\quad \left[\frac{m}{s} \rightarrow \frac{km}{hr} = \times 3.6\right]$

1) $d = 320\ km$

$t = 3.6\ hr$

$v = ?$

$v = \frac{320\ km}{3.6\ hr} = \boxed{89\ km/hr}$

2) $v = 92\ km/hr$

$t = 5\ hr$

$d = ?$

$d = (92\ km/\cancel{hr})(5\ \cancel{hr})$

$\boxed{d = 460\ km}$ | or $500\ km$ [SF]

3) $v = 12.0\ km/hr$

$t = 3.2\ min \times \frac{1\ hr}{60\ min} = 5.3 \times 10^{-2}\ hr$

$d = ?$

$d = (12.0\ km/\cancel{hr})(5.3 \times 10^{-2}\ \cancel{hr}) = \boxed{0.64\ km}$

4) $V = 8.0 \times 10^2$ km/hr

$d = 1.8 \times 10^3$ km

$t = ?$

1.8×10^3 km $= (8.0 \times 10^2$ km/hr$)(t)$

$\div 8.0 \times 10^2$ km/hr $\quad \div 8.0 \times 10^2$ km/hr

2.25 hr $= t$

$\boxed{2.2 \text{ hr} = t}$

5) $d = 568$ km

$t = 7.2$ hr

$V = ?$

$V = \dfrac{568 \text{ km}}{7.2 \text{ hr}} = 78.88$

$\boxed{V = 79 \text{ km/hr}}$

6) $V = 3.0 \times 10^5$ km/s [* Error in question $C = 3.00 \times 10^5$ km/s *]

$d = 3.84 \times 10^5$ km $\times 2$ [there & back] $= 7.68 \times 10^5$ km

$t =$

$V = \dfrac{d}{t}$

$V \cdot t = d$

$t = \dfrac{d}{V}$

$t = \dfrac{7.68 \times 10^5 \text{ km}}{3.00 \times 10^5 \text{ km/s}} = 2.56 \text{ s}$

$\boxed{t = 2.56 \text{ s}}$

7) $a = 7.0$ m/s^2

$t = 10.0$ s

$V = ?$

$a = \dfrac{V}{t}$

$7.0 \text{ m/s}^2 = \dfrac{V}{10.0 \text{ s}}$

$7.0 \text{ m/s}^2 \times 10.0 \text{ s} = \boxed{70 \text{ m/s} = V}$

$\boxed{\dfrac{\text{m}}{\text{s}} \rightarrow \dfrac{\text{km}}{\text{hr}} = \times 3.6}$

$\boxed{\text{add to formulas}}$

$70 \text{ m/s} \times \dfrac{1 \text{ km}}{1000 \text{ m}} \times \dfrac{3600 \text{ s}}{1 \text{ hr}}$

$* \boxed{= 252 \text{ km/hr}}$

8) $a = 2.8$ m/s^2

$V_i = 1.4$ m/s

$d = 2.5$ m

$V_f^2 = V_i^2 + 2ad$

$V_f^2 = (1.4 \text{ m/s})^2 + 2(2.8 \text{ m/s}^2)(2.5 \text{ m})$

$V_f^2 = 1.96 \dfrac{\text{m}^2}{\text{s}^2} + 14 \dfrac{\text{m}^2}{\text{s}^2} = 15.96 \text{ m}^2/\text{s}^2$

$\sqrt{V_f^2} = \sqrt{15.96 \text{ m}^2/\text{s}^2}$

$\boxed{V_f = 4.0 \text{ m/s}}$