P. 213 Dr. Bob

1. $v = 30\,km/h \qquad \Delta t = 50\,min = \frac{5}{6}\,hr$

$$d = vt = (30\,km/hr)\left(\frac{5}{6}\right)hr$$

$$\boxed{d = 25\,km}$$

2. $8.24 \times 10^{13}\,km \qquad c = 3.00 \times 10^{8}\,m/s$

$$t = \frac{d}{v} = \frac{8.24 \times 10^{13}\,km}{3.00 \times 10^{8}\,m/s}\left(\frac{10^{3}\,m}{1\,km}\right)$$

$$\boxed{t = 2.75 \times 10^{8}\,s} = 8.71\,yrs$$

3. $v = 100\,km/h \qquad \Delta t = 1\,s$

$$d = vt = \left(\frac{100\,km}{h}\right)\left(\frac{1\,h}{3600\,s}\right)\left(\frac{1000\,m}{1\,km}\right)(1\,s)$$

$$\boxed{d = 27.8\,m}$$

4. $v = 50\,cm/s = 0.50\,m/s \qquad d = 100\,km = 100{,}000\,m$

$$t = \frac{d}{v} = (100{,}000\,m)\left(\frac{s}{0.5\,m}\right)$$

$$\boxed{t = 2.0 \times 10^{5}\,s} = 55.6\,hrs$$

5. Going $\quad v = \frac{4\,km}{1\,hr} \quad \boxed{v = 4\,km/h}$

Return $\quad v = \frac{-4\,km}{1.25\,h} \quad \boxed{v = -3.2\,km/h}$

6. $v = 4\,m/s$ for $20\,s$

$v = 2\,m/s$ for $10\,s$