

84. We note that the running time for Bill Rodgers is  $\Delta t_R = 2(3600) + 10(60) = 7800$  s. We also note that the magnitude of the average velocity (Eq. 2-2) and Eq. 2-3 (for average speed) agree in this exercise (which is not usually the case).

(a) Denoting the Lewis' average velocity as  $v_L$  (similarly for Rodgers), we find

$$v_L = \frac{100 \text{ m}}{10 \text{ s}} = 10 \text{ m/s} \quad v_R = \frac{42000 \text{ m}}{7800 \text{ s}} = 5.4 \text{ m/s} .$$

(b) If Lewis continued at this rate, he would covered  $D = 42000$  m in

$$\Delta t_L = \frac{D}{v_L} = \frac{42000}{10} = 4200 \text{ s}$$

which is equivalent to 1 h and 10 min.