

1.33. Solve: My barber trims about an inch of hair when I visit him every month for a haircut. The rate of hair growth is

$$\frac{1(\text{inch})}{(\text{month})} \left(\frac{2.54 \text{ cm}}{1 \text{ inch}} \right) \left(\frac{10^{-2} \text{ m}}{1 \text{ cm}} \right) \left(\frac{1 \text{ month}}{30 \text{ days}} \right) \left(\frac{1 \text{ day}}{24 \text{ h}} \right) \left(\frac{1 \text{ h}}{3600 \text{ s}} \right) = 9.8 \times 10^{-9} \text{ m/s}$$

$$= 9.8 \times 10^{-9} \left(\frac{\text{m}}{\text{s}} \right) \left(\frac{10^6 \mu\text{m}}{1 \text{ m}} \right) \left(\frac{3600 \text{ s}}{1 \text{ h}} \right) = 35 \mu\text{m/h}$$