

## Solutions to Quiz 1, Unit 2.2

1. In 40 minutes a person runs 3.5 miles. What is the runner's average speed?
  - A. 0.0350 miles per minute
  - B. 0.0875 miles per minute
  - C. 0.400 miles per minute
  - D. 11.439 miles per minute

**Solution:** The answer is **B**. The average speed is distance traveled divided by time:  $3.5/40 = 0.0875$ . (Note: 11.439 is minutes per mile:  $40 \text{ minutes} / 3.5 \text{ miles} = 11.429$  minutes per mile.)

2. At a particular instant a bicyclist is moving at 0.4 km/min. How far does the bicyclist go in the next three minutes?
  - A. 0.4 km
  - B. 0.8 km
  - C. 1.2 km
  - D. There is not enough information to answer the question.

**Solution:** The answer is **D**. We are given the instantaneous speed: 0.4 km/min. It is not necessarily the case that the speed is constant over the next three minutes. One might be tempted to use the equation

$$\text{distance} = \text{rate} \times \text{time} . \tag{1}$$

However, this equation is only true if the rate is constant, which is not necessarily the case here.