



# Science 8

Name: \_\_\_\_\_

Section \_\_\_\_\_

Average Speed

Date: \_\_\_\_\_

**Average Speed:** Show units and cancellations for all calculations.

1. Write the word and symbol formulas for constant speed

$$\text{speed} = \frac{\text{distance}}{\text{time}} \quad v = \frac{d}{t}$$

2. Write the word and symbol formulas for average speed

$$\text{average speed} = \frac{\text{total distance}}{\text{total time}} \quad v = \frac{d}{t}$$

3. If a car traveling at constant speed travels 240 meters in 15 seconds, what is the speed of the car?

$$v = \frac{d}{t} \quad v = \frac{240 \text{ m}}{15 \text{ s}} = 16 \text{ m/s}$$

4. A runner travels 750 meters along a flat valley in 170 seconds then runs up a 250 meter hill in 70 seconds. At the top of the hill, the runner rests for 220 seconds before running the 1000 meters back home in 200 seconds. What is the average speed of the runner?

$$d = 750 \text{ m} + 250 \text{ m} + 1000 \text{ m} = 2000 \text{ m} \quad v = \frac{d}{t} \quad v = \frac{2000 \text{ m}}{660 \text{ s}} = 3.0 \text{ m/s}$$
$$t = 170 \text{ s} + 70 \text{ s} + 220 \text{ s} + 200 \text{ s} = 660 \text{ s}$$

5. Describe the difference between speed and velocity.

Speed is rate of change in distance while velocity is rate of change in displacement in a given direction

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