Name _____ Class _____ Date _____

Speed, Distance, and Acceleration

Calculate the average speed of a jogger who runs 100 meters in 30 seconds.

1. Read and Understand

What information are you given?

Distance = 100 m

Time = 30 s

2. Plan and Solve

What are you trying to calculate?

Average speed

What formula contains the quantities and the unknown?

$$\text{Average speed} = \frac{\text{total distance covered}}{\text{time interval}}$$

Replace each variable with its known value.

$$\text{Average speed} = \frac{100\ \text{m}}{30\ \text{s}} = 3.3\ \text{m/s}$$

3. Look Back and Check

Is your answer reasonable?

Yes, the number calculated is the quotient of distance and time, and the units indicate speed.

Math Practice

On a separate sheet of paper, solve the following problems.

1. Calculate your average speed if you travel 210 kilometers in 7 hours.

   average speed = $\frac{210\ \text{km}}{7\ \text{h}}$ = 30 km/h

2. If your average speed is 40 kilometers per hour and you have traveled for 0.5 hour, what distance have you traveled?

   distance = average speed × time = 40 km/h × 0.5 h = 20 km

3. Calculate your acceleration if your change in speed is 20 meters per second and the time interval is 5 seconds.

   acceleration = change in speed/time interval = $\frac{20\ \text{m/s}}{5\ \text{s}}$ = 4 m/s^2