

Chapter 4 Linear Motion

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.
2. If your average speed is 40 kilometers per hour and you have traveled for 0.5 hour, what distance have you traveled?
3. Calculate your acceleration if your change in speed is 20 meters per second and the time interval is 5 seconds.