

Chapter 11 Motion

Section 11.2 Speed and Velocity

(pages 332–337)

This section defines and compares speed and velocity. It also describes how to calculate average speed.

Reading Strategy (page 332)

Monitoring Your Understanding After you read this section, identify several things you have learned that are relevant to your life. Explain why they are relevant to you. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Facts About Speed and Velocity	
What Is Important	Why It Is Important

Speed (pages 332–334)

1. Define speed. _____

2. The SI units for speed are _____.
3. How is instantaneous speed different from average speed? _____

4. The equation used for calculating average speed is _____.
5. Is the following sentence true or false? You can determine how fast you were going at the midpoint of a trip by calculating average speed for the entire trip. _____
6. A student walked 1.5 km in 25 minutes, and then, realizing he was late, ran the remaining 0.5 km in 5 minutes. Calculate his average speed on the way to school.

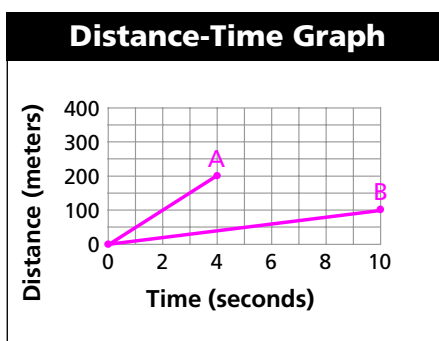
7. What type of speed does an automobile’s speedometer display?

Graphing Motion (page 334)

8. The slope of a line on a distance–time graph represents _____.

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For questions 9 through 11, refer to the graph below.



9. Draw a point on the graph that represents 200 m traveled in 4 seconds. Draw a line connecting this point with the origin (0,0). Label this as line A.
10. Draw a point on the graph that represents 100 m traveled in 10 seconds. Draw a line connecting this point with the origin (0,0). Label this as line B.
11. Calculate the average speed (slope) of lines A and B. Be sure to include units. _____

Velocity (page 336)

12. How do speed and velocity differ? _____

13. Circle the letter of each sentence that describes a change in velocity.
 - a. A moving object gains speed.
 - b. A moving object changes direction.
 - c. A moving object moves in a straight line at a constant speed.
 - d. A moving object slows down.
14. Is the following sentence true or false? If a car travels around a gentle curve on a highway at 60 km/h, the velocity does not change. _____

Combining Velocities (page 337)

15. How do velocities combine? _____
16. A river flows at a velocity of 3 km/h relative to the riverbank. A boat moves upstream at a velocity of 15 km/h relative to the river. What is the velocity of the boat relative to the riverbank?
 - a. 18 km/h downstream
 - b. 15 km/h upstream
 - c. 12 km/h upstream
 - d. 12 km/h downstream