

Guided Reading Chapter 4 Section 1

1. The variable \_\_\_\_\_ describes how quickly something moves.
  - a) time
  - b) position
  - c) speed
  - d) mass
2. Copy the equation for speed (including labels and units) on page 75.
3. What is the difference between average speed and instantaneous speed?
4. The fastest speed in the universe is the \_\_\_\_\_ .
5. Work the “Your Turn” problems on page76. Show all your work and check your answers with the “Solve It and look Later” box along the side of the page.
  - a)
  - b)
  - c)
6. Velocity is a \_\_\_\_\_.
  - a) vector
  - b) value
  - c) arrow
  - d) none of these
7. What is the difference between speed and velocity?
8. Copy the table in the middle of page 77.

9. Work the “Your Turn” problems on page 78. Show all your work and check your answers with the “Solve It and Look Later” box along the side of the page.

a)

b)

10. Work the “Challenge” problems in the side bar on page 79. Show all your work!

1.

2.

## Teachers Guide

1. C, speed
- 2.

**SPEED**

$$\text{Speed (cm/s)} \quad \mathbf{v} = \frac{\mathbf{d} \text{ Distance (cm)}}{\mathbf{t} \text{ Time (s)}}$$

3. Instantaneous speed is the actual speed at an exact moment in time. Average speed is speed is the speed calculated over a time period; a distance divided by the time it takes to go that distance.

4. speed of light

5. a)  $d = (20 \text{ km/h})(3 \text{ h}) = 60 \text{ km}$

b)  $v = 20 \text{ m} / 5 \text{ sec} = 4 \text{ m/s}$

c)  $t = 600 \text{ km} / 50 \text{ km/h} = 12 \text{ hrs}$

6. a, vector

7. Velocity is a vector, speed is not. Velocity has both magnitude and direction.

8.

Word Formulas		Equation
speed = distance ÷ time	velocity = distance ÷ time	$v = \frac{d}{t}$
distance = speed × time	distance = velocity × time	$d = vt$
time = distance ÷ speed	time = distance ÷ velocity	$t = \frac{d}{v}$

9. a)  $d = (+90 \text{ km/h})(2 \text{ h}) = +180 \text{ km}$

$d = (-80 \text{ km/h})(.5 \text{ h}) = -160 \text{ km}$

The car moves 180 km south from the origin, and then turns and moves 160 km back. This leaves the car 20 km south of its original position.

b)  $D = (30\text{km/h})(30\text{h}) = 900 \text{ km}$ . No, the ship will not make it.

10.

1. The cyclist in Figure "A" is moving at a speed of 1 m/s. The cyclist in Figure "B" is moving at a speed of 3 m/s.

2. The cyclist in figure "B" is moving faster than the one in figure "A". "He" is moving at a rate of three times the cyclist in figure "A".