

Chapter 1 Linear Motion

# Student Problems

## 1.2 Distance and Displacement

1. A monkey leaves his history class and walks 10 meters north to the drinking fountain. He then turns and walks 30 meters south to his art class. What is the total distance the monkey traveled from his history class and what was his total displacement?

*Draw a picture*

*Show your work*

a) \_\_\_\_\_ ← units      b) \_\_\_\_\_ ← units

2. In a drill during basketball practice, a player runs the length of the 30 meter court and back. The player does this three times in 60 seconds. What is the magnitude of the player's total displacement and what is the total distance traveled by the player?

*Draw a picture*

*Show your work*

a) \_\_\_\_\_ ← units      b) \_\_\_\_\_ ← units

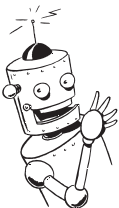
3. You travel 23 meters north in 16 seconds, 5 meters south in 4 seconds, and 16 meters north in 18 seconds. Calculate your total distance traveled and your displacement.

*Draw a picture*

*Show your work*

a) \_\_\_\_\_ ← units      b) \_\_\_\_\_ ← units

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4. From the previous problem calculate both your average speed and average velocity.

*Show your work*

a) \_\_\_\_\_ ← units      b) \_\_\_\_\_ ← units

5. A monkey travels 48.28 meters north for 12 seconds, then 40 meters south for 27 seconds. Calculate both the monkey's average speed and average velocity.

*Show your work*

a) \_\_\_\_\_ ← units      b) \_\_\_\_\_ ← units

6. A runner completes two circuits around a 200 meter track 200 in 75 seconds. Calculate the runners average speed and average velocity.

*Show your work*

a) \_\_\_\_\_ ← units      b) \_\_\_\_\_ ← units

