

# Graphing Exercise

Graph the following on a position vs. Time Graph. And answer the questions that follow each problem.

1. A car travels at 5.0m/s for 5.0 seconds. Then it remains at rest for 3.0 seconds. It then travels at 8.0 m/s for 5.0 seconds. It then travels at -4.0m/s for 5.0 seconds.
  - a. What was the total change in position for the car?
  - b. What was the average velocity of the car?
2. A bike starting at position  $x=100\text{m}$  travels at +5.0 m/s for 10 seconds. It then changes its speed to -8.0m/s for 20 seconds. It remains at rest for 5.0 seconds and then travels with a velocity of +1.0m/s for 10 seconds.
  - a. What is the total position change of the bike?
  - b. What was the average velocity of the car?

Graph the following on a Velocity vs. Time graph and answer the questions that follow each problem.

3. A car travels at a constant velocity of 10m/s for 5.0 seconds. It then accelerates to a velocity of 20m/s in 2 seconds. It then accelerates with a rate of  $-2.0\text{m/s}^2$  for 10 seconds.
  - a. What is the final velocity of the car?
  - b. What is the average velocity of the car?
  - c. What was the total position change of the car?
4. A spaceship is traveling at -20.0m/s for 5.0 seconds. It then accelerates at  $+8.0\text{m/s}^2$  for 5.0 seconds.
  - a. What is the final speed of the spaceship?
  - b. What is the average velocity of the spaceship?
  - c. What was the total distance traveled by the spaceship?
  - d. Instead of 5 seconds, how long would the spaceship have to accelerate at  $+8.0\text{m/s}^2$ , so that the average velocity of the spaceship would be 0m/s?