TEST FOR MODULE #1

1. The acceleration of a car is zero. Does this mean that its velocity is also zero?

2. If the velocity of a plane is reported as 100 m/sec and its acceleration is reported as -10 m/sec^2, is the plane speeding up or slowing down?

3. What is the difference between speed and velocity?

4. A physicist measures the instantaneous velocity of an object in three different places along its journey. The velocities were 2 m/sec, 4 m/sec, and 8 m/sec. She then measures the object's average velocity throughout the journey. Which of the following values is most likely to be that average velocity: 1 m/sec, 3 m/sec, or 16 m/sec?

5. A person is walking in an airport at a constant velocity of 1.3 m/sec. What is the person's acceleration?

6. A football player receives a kickoff and runs 98 yards straight into the end zone. After spiking the ball and doing his dance, he turns around and runs 31 yards back to his teammates for some serious celebrating. How much distance did he travel? What was his final displacement?

7. A car is traveling down a one-lane country road at 21 miles/hour. Up ahead, a truck is traveling the opposite direction at 15 miles/hour. If they are 0.20 miles apart, how long will it be before they run into each other, assuming neither one of them slows down?

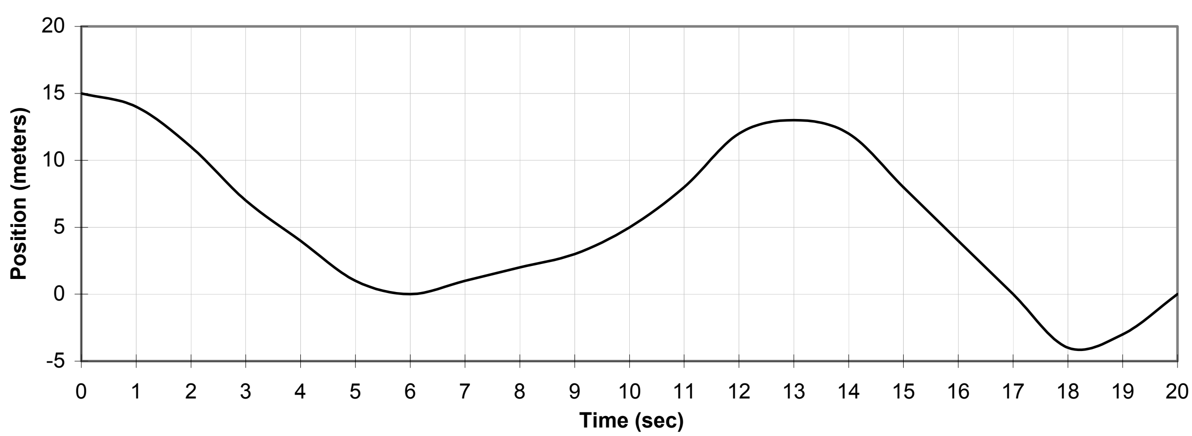

21 mph

15 mph


8. A car starts at rest and accelerates as quickly as possible. If the acceleration is 1.2 m/sec^2 and the car accelerates for 10.0 seconds, what will the car's final velocity be?

<u>Questions 9 - 12 refer to the figure below.</u>

A car's motion is described by the following position-versus-time graph:



9. What is the car's velocity at 13.0 seconds?

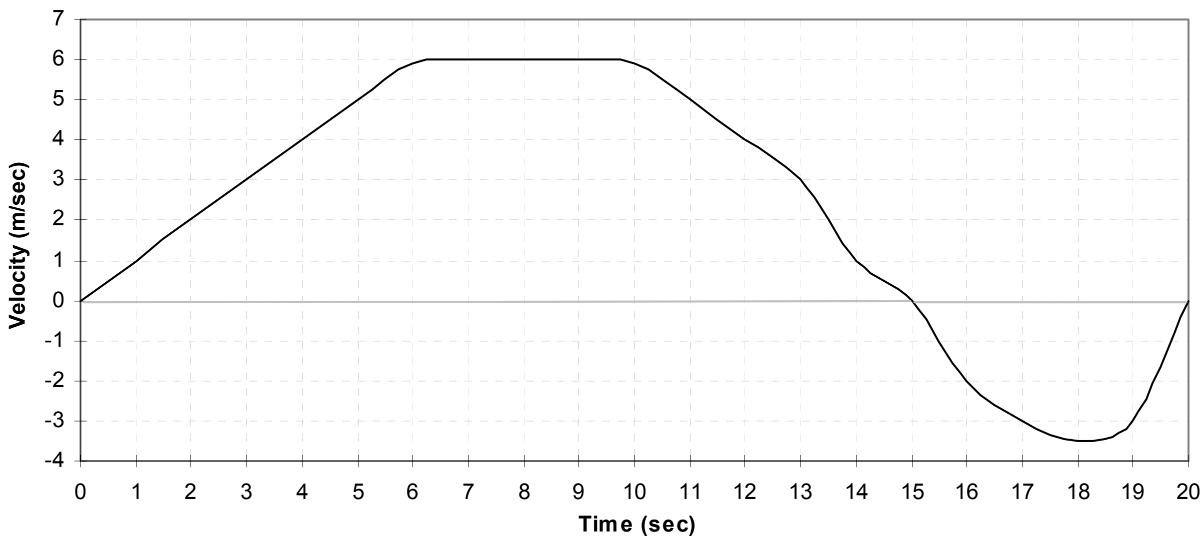
10. Is the car's velocity larger at 11.2 seconds or 8.0 seconds?

11. What is the car's velocity at 16.0 seconds?

12. How many times does the car change direction?

<u>Questions 13 - 15 refer to the figure below.</u>

Consider an object whose motion is given by the following velocity-versus-time graph:



13. What is the object's acceleration at 2.0 seconds?

14. What is the object's acceleration at 8.0 seconds?

15. Over what time intervals does the object speed up?