

## Chapter 1 Linear Motion

### Review: Speed, Velocity, Acceleration

1. Explain how to find speed and velocity and how they are difference.
2. Explain how you find the instantaneous speed or velocity of an object?
3. Explain how you can determine if an object is accelerating. Give two examples
4. What is a scalar? List three
5. What is a vector? List three
6. What are the SI units for distance, speed, velocity, and acceleration?
7. Sketch the a graph for distance vs time and velocity vs time for an object that is traveling at a constant velocity..
8. Sketch the a graph for distance vs time and velocity vs time for an object that is undergoing a positive acceleration.
9. You travel 35 meters in 26 seconds, what is your average speed?
10. A bike travels at a constant speed of 4.0 m/s for 5 s, how far does it go?
11. You travel 80 km in the first 1.00 hour of a trip, 50 km in the next 0.50 hours, and 40 km in the final 0.25 hours. Calculate your average speed for the entire trip?



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12. A student walks 15-meters north then the student turns and walks 35-meters south. What is the total distance traveled and what is the displacement of the student?
  
13. An object travels 5 meters in the first second of travel, 5 meters again during the second second of travel, and 5 meters again during the third second. What is the objects acceleration?
  
14. A car is moving with a constant speed around a turn. Can you say that the car is also moves with a constant velocity, explain.
  
15. An objet accelerates from rest to a final velocity 24 m/s in 3.0 seconds, what is the magnitude of the objects average acceleration during this time interval?
  
16. A car increases it's velocity from 4.0 m/s to 36 m/s in 4.0 seconds. What is the magnitude of the car's average acceleration during this time interval?
  
17. If a car accelerates from rest at a constant rate  $5.5 \text{ m/s}^2$ , how long will it take to reach a final velocity of 28 m/s?
  
18. A car, traveling at 15 m/s accelerates uniformly over a distance of 125 meter distance. to a final velocity of 25 m/s, what is the magnitude of the car's acceleration?
  
19. A car is traveling with an initial velocity of 5 m/s when it accelerates uniformly at a rate of  $7 \text{ m/s}^2$ . How fast will the car be traveling after 4 seconds?
  
20. A car applies the brakes and slows at a rate of  $2.1 \text{ m/s}^2$ . How much time will be required for the car to change it's velocity from 22 m/s to 3.0 m/s?
  
21. A car is traveling with an initial velocity of 12 m/s when it experiences a uniform acceleration of  $1.6 \text{ m/s}^2$  while it is coasting down a hill, how far will the car travel in 6.0 seconds?

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