Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Study Guide – Motion Test**

1. Define position:
2. A location to which you compare another location is called a \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.
3. Define motion:
4. What determines how quickly or slowly a moving object changes position?
5. As you wait for the bus at the bus stop, a car passes by you. Describe the motion of a passenger in the car to both another rider in the car and you, standing at the bus stop.
6. You are on a train waiting to depart the station. Give a frame of reference you could use to prove that your train is moving.
7. Define speed:
8. The formula for speed is \_\_\_\_\_\_\_\_\_\_.
9. An object with a \_\_\_\_\_\_\_\_\_\_ speed will travel a \_\_\_\_\_\_\_\_\_\_ distance in the same amount of time than an object with a \_\_\_\_\_\_\_\_\_\_ speed.
10. If two runners cover the same distance in different amounts of time, how do their speeds compare?
11. Calculate the speed of a runner who covers 400 m in 50 sec.
12. How long will it take a car traveling at 60 mph to travel 90 miles?
13. How far can a wheelchair athlete travel in 45 minutes when they are moving at a rate of 2 m/s? (Careful: Time is given in two different units.)
14. Calculate the average speed of a runner who runs a 1600-meter race. Her lap times are 83, 81, 79, and 77 seconds for each of 4 laps.
15. Is the runner in problem getting faster or slower after each lap? Explain.
16. Compare and contrast speed and velocity.
17. How do vectors describe velocity?
18. Define acceleration:
19. An object experiences acceleration when it \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_.
20. What is the formula for acceleration?
21. A man walking at 0.6 m/s accelerates to a velocity of 0.7 m/s in 1 second. Calculate his acceleration.
22. A biker traveling at 15 mph comes to a complete stop in 5 seconds. Calculate his acceleration.
23. Explain how a rider on a Ferris Wheel moving at a constant rate is accelerating.