Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Textbook pg 118-123

Also: do Math Box pg 120 Show all work.

Section: Measuring Motion

1. Name something in motion that you cannot see moving.

_____

_____

_____

OBSERVING MOTION BY USING A REFERENCE POINT

_____ **2.** An object in motion is moving in relation to an object that appears to
- **a.** stay in place.
- **b.** keep moving.
- **c.** maintain constant velocity.
- **d.** maintain constant acceleration.

_____ **3.** When an object changes position over time relative to a reference point, the object is
- **a.** speeding.
- **b.** accelerating.
- **c.** decelerating.
- **d.** moving.

4. For determining motion, the surface of Earth is a common _____.

5. Why are buildings, trees, and mountains all useful reference points?

_____

_____

6. Can a moving object be used as a reference point? Explain.

_____

_____

_____

SPEED DEPENDS ON DISTANCE AND TIME

7. The speed of an object depends on the distance traveled and the _____ taken to travel that distance.

8. The SI unit for speed is _____.

9. Why is it useful to calculate average speed?

_____

10. Explain how to calculate average speed.

11. When a person drives for several hours, how does the distance traveled in one hour usually compare with the distance traveled in other hours? Explain.

12. Suppose that, on a graph showing speed, there are two lines. One line represents speed per hour, and the other line represents average speed. Will both lines be exactly alike and in the same place on the graph? Explain.

VELOCITY: DIRECTION MATTERS

_____**13.** Which of the following does NOT experience a change in velocity?

- **a.** A motorcyclist driving down a straight street applies the brakes.
- **b.** While maintaining the same speed and direction, an experimental car switches from gasoline to electric power.
- **c.** A baseball player running from first base to second base at 10 m/s comes to a stop in 1.5 seconds.
- **d.** A bus traveling at a constant speed turns a corner.

14. Why don't birds end up at the same destination if they are flying exactly the same speed at all times?

15. What is the difference between velocity and speed?

16. To find the resultant velocity, add velocities that are in the _____ direction(s). Subtract velocities that are in the _____ direction(s).

ACCELERATION

17. If your speed is not changing but your direction is changing, are you accelerating? Explain your answer.

_____

_____

_____

18. Another name for acceleration in which velocity increases is _____ acceleration.

19. Negative acceleration is also called _____.

20. Write the mathematical formula for calculating average acceleration.

_____

_____

_____

21. A speedometer shows that a cyclist is going 1 m/s the 1st second, 2 m/s the 2nd second, and 3 m/s the 3rd second, as the cyclist continues straight south. How do you know the cyclist is accelerating?

_____

_____

_____

_____

22. How can you recognize acceleration on a graph?

_____

_____

_____

_____

23. A graph shows a roller coaster increasing in velocity for the first eight seconds as it goes down the hill. Will the graph have an upward slope representing a roller coaster traveling down the hill? Explain your answer.

24. As long as something travels in a circle, is it always accelerating? Explain your answer.