Name: _____

Physical Science Unit 1 Study Guide

Chapter 1:

1. Write the following numbers in scientific notation:

   a. 0.000788 m b. 1200000 mL

2. Write the following numbers in standard notation:

   a. 3×10^{8} m/s b. 9.2×10^{-3} kg

3. Make the following unit conversions.

   a. 100 g = _____ kg b. 0.029 cm = _____ m c. 47.8 daL = _____ mL

4. Fill in the missing information for the following chart.

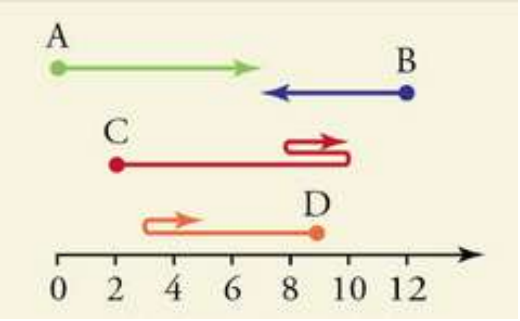
Measurement	SI Unit	Unit Abbreviation
time		s
	kilogram	kg
temperature		K
amount of substance	mole	
	candela	cd
electric current		A
length	meter	

Chapter 11:

Make sure you study all of the vocabulary from Chapter 11.

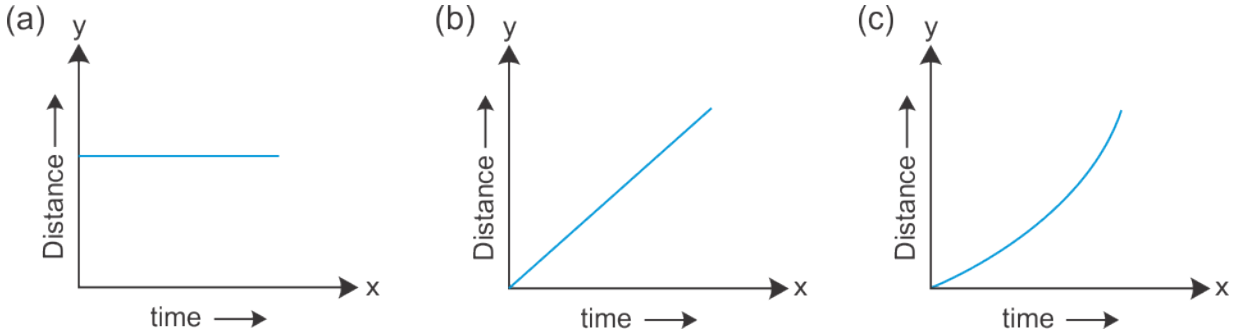
5. What does the slope represent on a distance-time graph?

6. Using the diagram, calculate the distance of each line.



7. Using the diagram, calculate the displacement of each line.

8. Describe the motion of each distance-time graph below.



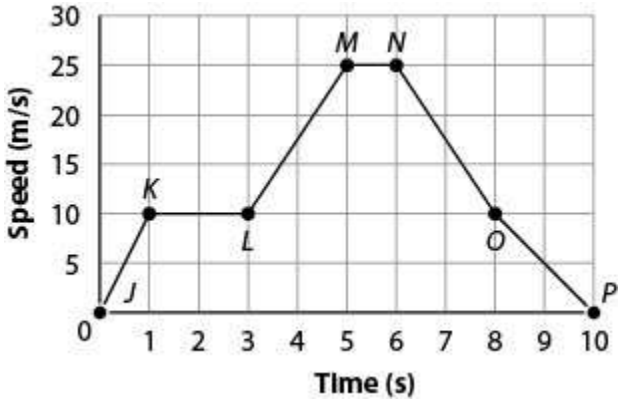
9. A jogger travels 8.0 kilometers in 1.25 hours. What is the jogger's speed?

10. A car travels for 120 minutes at a velocity of 50 km/hr south. How far did the car travel?

11. What are three ways for an object to accelerate?

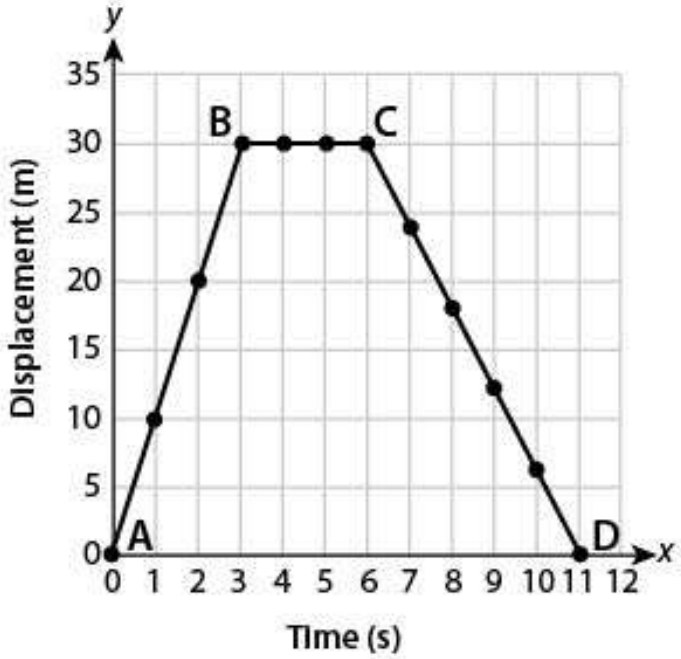
12. A ball is rolling at 25 m/s west. After 5 seconds, its speed slows to 10 m/s. What is the ball's acceleration (deceleration)?

13. During which interval is the object's acceleration the greatest?



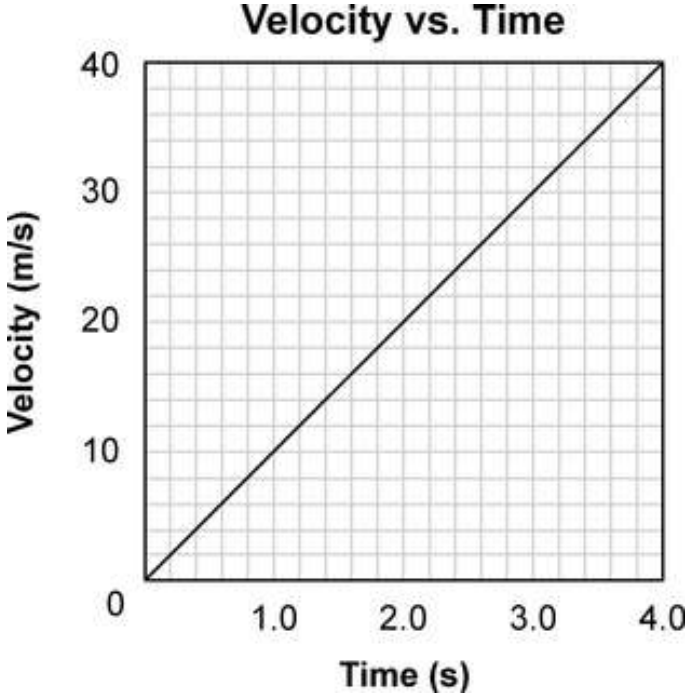
a. NO b. JK c. LM d. MN

14. If the object starts moving from point A and continues along a straight path from point A to point D, which of the following is true?



a. In the interval from point A to point B, the object travels 30 m.
b. In the interval from point B to point C, the object travels 30 m.
c. In the interval from point C to point D, the object travels 0 m.
d. In the interval from point A to point D, the object travels 11 m.

15. What is the magnitude of the displacement of the car from t = 2.0 seconds to t = 4.0 seconds?



a. 20 m b. 40 m c. 60 m d. 80 m

Chapter 12:

Study all of the vocabulary terms for Chapter 12.

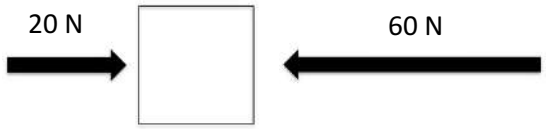
16. What happens to the motion of an object if balanced forces act on it?

17. What two forces act on a falling object?

18. If you push a heavy box across the floor to the left of a room, then what is the direction of the friction?

19. If you go to Jupiter, which has a larger gravitational force than Earth, what will happen to your mass? What would happen to your weight?

20. What is the net force acting on the following object?



21. What is the force acting on an object with a mass of 25 kg and an acceleration of 2.3 m/s^2?

22. The acceleration due to gravity on Mars is 3.8 m/s^2. How much would an object with a mass of 16 kg weigh on Mars?

a. 4.2 N b. 16 N c. 61 N d. 96 N

Chapter 14:

Study all of the vocabulary terms for Chapter 14.

23. Is lifting a grocery bag considered work? Is carrying the bag considered work?

24. How much work is done if a person uses a 150 N force to lift a box 2.3 m?

25. How does a machine help make work easier?

26. How does the work output of a machine compare to the work input?

27. If the resistance distance of pliers is 3.0 cm and the effort distance of pliers is 15.0 cm, then what is the ideal mechanical advantage?

28. If the resistance force is 50.0 N and the effort force is 12.5 N, what is the actual mechanical advantage of the machine?

29. Why can a machine never be 100% efficient?

30. Four machines had a certain energy input and energy output A change was made and the machines' energy output increased even though the energy input remained the same. What kind of change MOST LIKELY took place?
    a. The machines were lubricated to reduce friction, increasing efficiency.
    b. The machines were put under increased gravity, increasing efficiency.
    c. The machines were run for a longer period of time, increasing output.
    d. The machines were made larger to increase force, increasing output.