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Name _____
Physics 1100 Test 1A 2020

Read carefully:

- **Work out the problems 1- 5 and put the answers to 6 – 14 on this answer sheet (or write it out on paper). Only return the first two pages of this handout.**
- **Complete and return your answers by 9:00 PM! (June 17, 2020)**
- **You may use your notes, your homework assignments and the review. You may not get help from any other person in any way.**

Directions: For full credit for each problem:

- **Write the equation**
 - **Substitute for the equation using proper units**
 - **Calculate the answer and express it with correct units.**
1. A car's speed increases uniformly from 14 m/s, to 28 m/s with a rate of acceleration of 2.2 m/s^2 . How long did it take the car to reach its final speed?
 2. A package is dropped from a window and falls for 2.3 s. How far did it fall if it starts from rest?
Remember $a = g = 9.8 \text{ m/s}^2$
 3. A plane flying with a speed of 135 m/s accelerates to a speed of 285 m/s in 4200 m. What was the plane's acceleration?
 4. A sprinter runs the 1600-m race, accelerating constantly the entire distance at a rate of 0.025 m/s^2 . How fast is the sprinter going when he crosses the finish line?
 5. An athlete runs an **average speed** of 2 km/h for 25 s. How far did he run?

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6. a. _____
b. _____
c. _____
d. _____
e. _____
f. _____

7. a. _____
b. _____
c. _____
d. _____
e. _____

8. a. _____
b. _____
c. _____
d. _____

9. a. _____
b. _____
c. _____
d. _____

10. a. _____
b. _____
c. _____
d. _____
e. _____

11. a. _____
b. _____
c. _____
d. _____
e. _____
f. _____

Multiple Choice Bonus Points

12. _____
13. _____
14. _____

Please sign below:

(your signature)

I swear the above work is my own and I had no help of any kind from another person.

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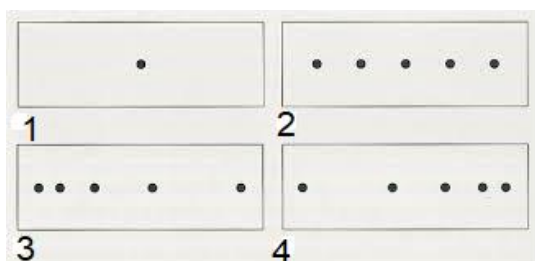
6. Give the number of significant figures in the following measurements.

- a. 1.00350
- b. 201.000
- c. 5.60×10^4
- d. 200.
- e. 1.200×10^9
- f. 0.00120

7. Solve the following problems and round the answer using the correct number of significant figures. Indicate the unit of the final answer.

- a. $\frac{4.56 \text{ m}^3}{2.0 \text{ m}^2}$
- b. $1.37 \text{ kg} \times 2.2 \text{ kg}$
- c. $1.80 \text{ cm} + 3.0 \text{ cm} + 5.44 \text{ cm}$
- d. $35.0 \text{ kg} - 21 \text{ kg}$
- e. $(2.3 \times 10^{13} \text{ cm})(6.5 \times 10^{-9} \text{ cm})$

8. Match the description of the motion diagram with the number of the diagram it describes.



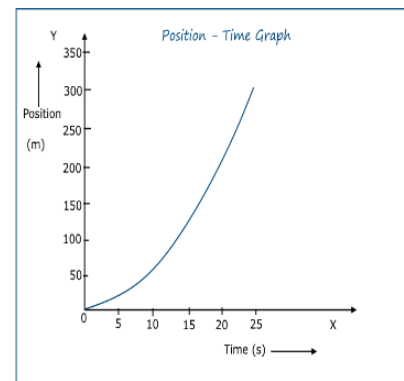
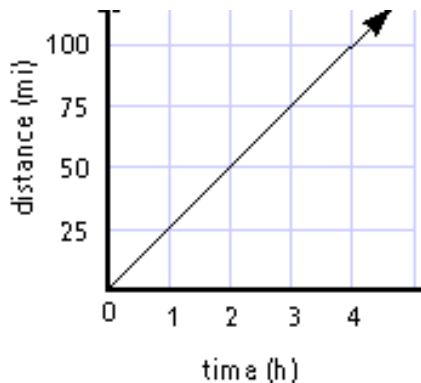
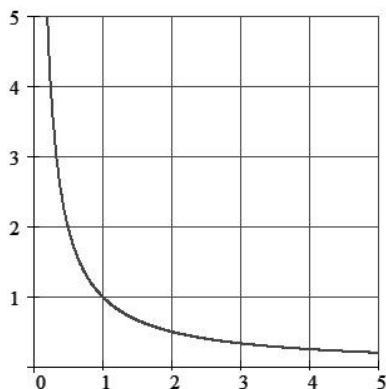
- a. constant velocity
- b. negative acceleration
- c. positive acceleration
- d. at rest

9. Answer the questions that refer to the following graphs.

A.

B.

C.

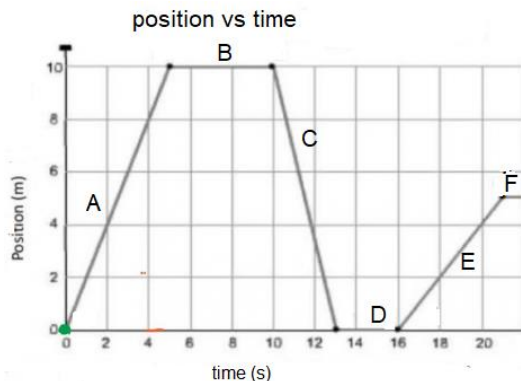


Questions

- a. Which graph represents a parabolic relationship?
- b. Which of the graphs could have the equation $y = kx^2$?
- c. Write the general equation for graph B
- d. Which graph represents an inverse relationship?

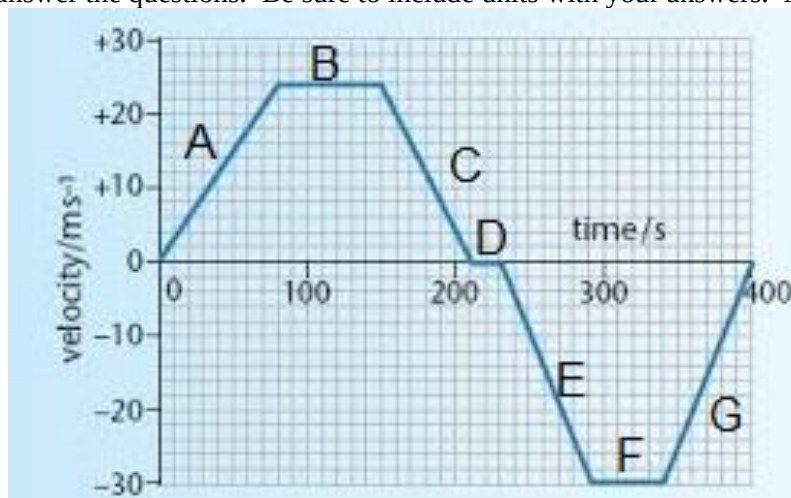
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10. Use the following graph to answer the questions. Be sure to include units with your answers. No need to show work.



- What is the velocity between the time interval of 0 s and 5 s?
- During which section is the speed the slowest?
- Which sections show no motion?
- What is the velocity during time interval 10 s to 13 s?
- Is acceleration shown on this graph? If so indicate the section.

1. Use the following graph to answer the questions. Be sure to include units with your answers. No need to show work.



- What was the acceleration during section A?
- What was the acceleration during section E?
- What distance was traveled during the first 210 s?
- Which section shows no motion?
- Which sections show the object going in the opposite direction?
- Which sections show constant velocity?

Multiple Choice Bonus Points: Indicate the correct answer.

12. The quantity that is a measure of how the speed of an object changes with time is

- | | |
|-------------|-----------------|
| A. distance | C. acceleration |
| B. speed | D. time |

13. A runner on a track runs several laps. His **average** speed is determined from

- | | |
|---|---|
| A. his velocity divided by the time | C. his total distance covered divided by the time |
| B. time divided by how far he ends up from the starting point | D. time divided by his total distance covered |

14. Which of the following is not an appropriate unit for measuring acceleration?

- | | |
|-------------------------|------------------------|
| A. miles/h ² | C. m/s ² |
| B. ft/s | D. km/min ² |