Physics 2311. Pinkney. Name: _____

Exam-like questions on "Units and Measurements"

1. Solve this problem showing the correct number of significant figures: 81300 + 411.8 =

   (a) 82000 (b) 81700 (c) 81710 (d) 81712 (e) 81711.8

2. Solve this problem showing the correct number of significant figures: 3.021 × 8.0 =

   (a) 24.168 (b) 24.17 (c) 24.2 (d) 24 (e) 20

3. Suppose $A = B^n C^m$, where B has dimensions L, and C has dimensions LT^{-1}. If $n = 2$ and $m = -1$, what are the dimensions of A?

   (a) L^2T^1 (b) L^1T^1 L^1T^{-1} (c) L^1T^{-2} (d) L^2T^{-2} (e) $L^{-1}T^1$

4. Dimensionally speaking, could this equation be correct? (Show the dimensions for both sides.)

   $$2gh = Fxm^{-1}$$

   Here, F has units of kg m/s^2, m has units of kg, h and x have units of meters, and $g = 9.8m/s^2$.

   (a) Yes (b) No

5. If Mo runs 10 m right, 15 m left and 20 m right in 60 seconds, what was his average velocity?

   (a) 0.75 m/s left (b) 0.75 m/s right (c) 0.25 m/s right (d) 0.25 m/s left (e) 0.5 m/s right

6. If Mo runs 10 m right, 15 m left and 20 m right in 60 seconds, what was his average speed?

   (a) 0.75 m/s (b) 0.5 m/s (c) 0.25 m/s (d) 0.25 m/s (e) 4.0 m/s

7. What is the correct inequality symbol in the following: $|\Delta\vec{x}|$ _____ d.

   (a) $>$ (b) $<$ (c) $\geq$ (d) $\leq$ (e) $=$

8. What is the correct inequality symbol in the following: s_{avg} _____ $|\vec{v}_{avg}|$.

   (a) $>$ (b) $<$ (c) $\geq$ (d) $\leq$ (e) $=$

9. A car to the left of the origin is driving to the left and slowing down. If we describe the motion using an x-axis which increases to the right, the signs of its position, velocity and acceleration are _____, respectively.

   (a) -, +, and + (b) +, -, and + (c) -, -, and + (d) -, +, and - (e) +, -, and -

10. What is the area of a rectangular plate with $L = 21.3 \pm 0.2$ cm and $W = 9.2 \pm 0.1$ cm.

    (a) 195.9 ± 0.3 cm^2 (b) 195.9 ± 3 cm^2 (c) $196. \pm 3$ cm^2 (d) 195.9 ± 2.8 cm^2 (e) 196 ± 2.8 cm^2