AP Physics I

Mr. Agee
2016-2016
Summer Assignment

AP Physics Level I   Name _____
Summer Assignment 2016/2017
You **MUST** show work for the problems to receive credit.
If assistance is needed, email me at msagee@henrico.k12.va.us

1. How many significant figures do each of the following numbers have:
   - (a) 1425 _____
   - (b) 281.60 _____
   - (c) 1.63 _____
   - (d) 0.03 _____
   - (d) 0.0086 _____
   - (e) 236 _____
   - (f) 2700 _____

2. Write the following numbers in scientific notation:
   - (a) 156,000 _____
   - (b) 18 _____
   - (c) 0.0068 _____
   - (d) 21.635 _____
   - (e) 0.21 _____

3. Write the following in scientific notation with standard units:
   - (a) 35.6 mm _____
   - (b) 25 μV _____
   - (c) 250 mg _____
   - (d) 500 ps _____
   - (f) 2.5 fentometers _____
   - (g) 25 gigavolts _____

4. A light-year is the distance light (speed = 2.998×10^8 m/s) travels in 1.00 year.
   - (a) How many meters are there in 1.00 light-year?

   - (b) An astronomical unit (AU) is the average distance from the Sun to Earth, 1.50×10^8 km. How many AU are there in 1.00 light-year?

5. Express 2500 m in kilometers and in centimeters.

6. How far is 40.2 miles when expressed in kilometers? Use the conversion factors:
   1 mile = 5280 feet, and 1 inch = 2.54 cm.

7. Using the correct number of significant digits, calculate the volume of a rectangular
   cereal box of height 27.5 cm, width 19.0 cm, and depth 6.1 cm. (Write your answer in
   scientific notation.)

8. Solve for all sides and all angles for the following right triangles.

(a)

25°

6.2

(b)

4.0

58°

(c)

39° 12.1

(d)

5.1

8.2

(e)

7.0   11.9
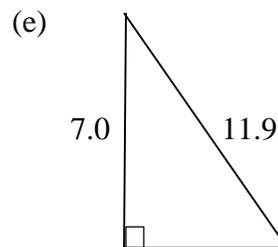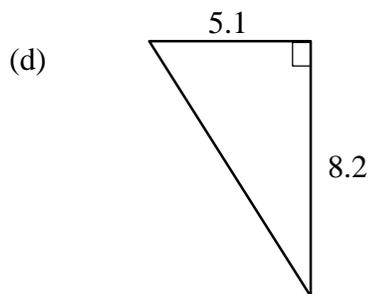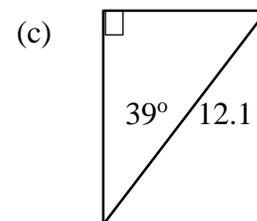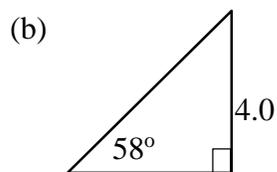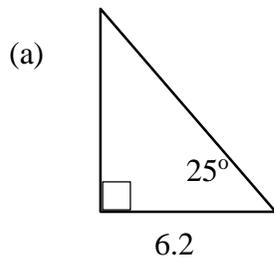
9. Solve the following equations:

(a) $\dfrac{1}{f} = \dfrac{1}{s_o} + \dfrac{1}{s_i}$ Solve for s_o

(c) $T_p = 2\pi\sqrt{\dfrac{1}{g}}$ solve for g

(d) $v^2 = v_o^2 + 2a(s - s_o)$ solve for v_o

(e) $F = \dfrac{K\, q_1 q_2}{r^2}$ solve for q_2