

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

### **A Sig Fig Word Problem:**

A renowned chemistry student named Bubba timed how long it would take him to complete 4 chemistry problems of varying difficulty. The first problem was fairly difficult and took him 103.9 seconds. The second one was extremely easy and only took him 1.37 seconds. The third problem was a real brain buster and required him to call his good friend Ernest on the phone for help. When he finally got the help he needed for this difficult problem it took him 3999 seconds. The last problem he remembered copying into his notes took him only 14.278 seconds. Since all four numbers were recorded at different degrees of accuracy, Bubba now needs your help to add these numbers together and round to the proper number of sig figs. **Show all work** in the space provided.

### **Miscellaneous Problems:**

1. What is the difference between mass and weight?
  
  
  
  
  
  
  
  
  
  
2. Calculate the density of a cube that is 5 cm by 2 cm and is 2 cm tall. The mass of the cube is 10 grams. **SHOW ALL WORK!!**
  
  
  
  
  
  
  
  
  
  
3. You are playing darts with your friends and you are “up” next. All three of your darts hit the double bull (the VERY center of the target), but you weren’t exactly aiming for the bull’s eye. Would you say that you have high accuracy, high precision, or both? Explain your reasoning.
  
  
  
  
  
  
  
  
  
  
4. When reading any volume in the laboratory, we always read where the bottom of the water curve falls. This is called the \_\_\_\_\_

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### Unit Conversions, Scientific Notation, Percent Error

Convert the following to scientific notation

1) 65,700 = \_\_\_\_\_

9) 0.0000654 = \_\_\_\_\_

2) 0.008 = \_\_\_\_\_

10) 19.8 = \_\_\_\_\_

3) 42 = \_\_\_\_\_

11) 0.0094 = \_\_\_\_\_

4) 0.7 = \_\_\_\_\_

12) 327 = \_\_\_\_\_

5) 32100 = \_\_\_\_\_

13) 0.228 = \_\_\_\_\_

6) 1066 = \_\_\_\_\_

14) 314 = \_\_\_\_\_

7) 0.722 = \_\_\_\_\_

15) 0.0224 = \_\_\_\_\_

8) 87992 = \_\_\_\_\_

16) 1239 = \_\_\_\_\_

Convert the following from scientific notation to standard form

17)  $2.34 \times 10^3 =$  \_\_\_\_\_

20)  $8.1 \times 10^2 =$  \_\_\_\_\_

18)  $3.2 \times 10^{-2} =$  \_\_\_\_\_

21)  $7.6 \times 10^5 =$  \_\_\_\_\_

19)  $6.43 \times 10^6 =$  \_\_\_\_\_

22)  $1.8 \times 10^{-4} =$  \_\_\_\_\_

Make the following metric conversions. Where necessary, put your answer in scientific notation.

23) 4.3 liters = \_\_\_\_\_ milliliters

26) 277 kilograms = \_\_\_\_\_ grams

24) 678 milliliters = \_\_\_\_\_ liters

27) 11.7 grams = \_\_\_\_\_ kilograms

25) 9.0 kilograms = \_\_\_\_\_ grams

Complete the following percent error calculations (show work to space at right). Express your answer in the appropriate number of significant figures.

28) Measured Value: 50 Accepted Value: 45

29) Measured Value: 8.56 Accepted Value: 9.81