Name_____

Date_____Pd____

Unit 1 Worksheet 2 – Significant Figures

The zero rules for significant figures follow:
(1) Zeros are significant when bounded by non-zero digits.
(2) Zeros preceding the first non-zero digit are never significant.
(3) If a decimal point is explicitly expressed, all zeros after the first non-zero digit are significant.
(4) If a decimal point is not explicitly expressed, zeros following the last non-zero digit are not significant.

For problems 1 - 10, in the first blank give the number of significant digits in the measurement and in the second blank, list the number(s) of the zero rule(s) that were necessary for your decision. For example:

3 **1,4** **9070 m**

Problems

1.	_____	_____	0.025 s	**2**.	_____	_____	405 kg
3.	_____	_____	20.50 m	**4.**	_____	_____	7 600 cm
5.	_____	_____	0.0102 kg	**6.**	_____	_____	0.1020 g
7.	_____	_____	0.004 ml	**8.**	_____	_____	20 010 mg
9.	_____	_____	2.0 x 10^2 m	**10**.	_____	_____	500 ml

As a general rule, we say that when taking measurements, we are justified in estimating to tenths of the smallest marked graduation on the measuring instrument.

For each of the following problems, in the blank record the correct measurement followed by the appropriate explanation of the rule(s) utilized. For example:

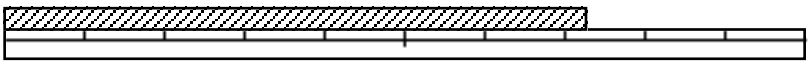


Figure 1

0.73 m The meter stick is graduated in tenths of a meter so the measurement should be estimated to hundredths of a meter.

11. 

Figure 2

_____

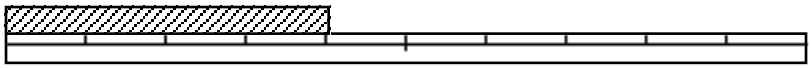
12. 

Figure 3

13. 

Figure 4

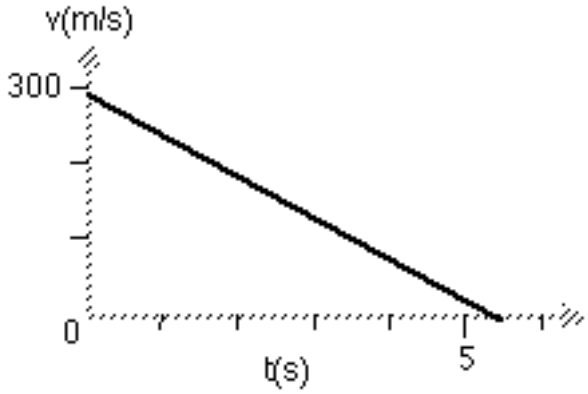


Figure 5

14. _____ Estimate the value of v when t = 0

15. _____ Estimate the value of t when v = 0

For each of the following problems, in the left blank record the value of the indicated calculation as given by the calculator. In the right blank express the answer to the appropriate number of sf's. Explain your reasoning.

16. 114.21 g + 3041 g + 0.042 g + 349.5 g =

17. $1.05 \text{ s} \times 10. \frac{\text{m}}{\text{s}} =$

_____ _____

18. Determine the volume of a block with dimensions
2.56 cm x 4.652 cm x 8.70 cm.

_____ _____

19. $\frac{9.081 \text{ m/s}}{450 \text{ s}} =$

_____ _____

20. Determine the slope of the line in Figure 5 (Show your work)

_____ _____