Significant Figures Worksheet Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chemistry Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mrs. Booth Class Period \_\_\_\_\_\_\_\_\_\_\_\_\_

Identify the number of significant figures in each of the following:

1. 12 \_\_\_\_\_\_\_ 0.02 \_\_\_\_\_\_\_
2. 1098 \_\_\_\_\_\_\_ 0.020 \_\_\_\_\_\_\_
3. 2001 \_\_\_\_\_\_\_ 501 \_\_\_\_\_\_\_
4. 2.001 x 10 3 \_\_\_\_\_\_\_ 501.0 \_\_\_\_\_\_\_
5. 0.0000101 \_\_\_\_\_\_\_ 5,000 \_\_\_\_\_\_\_
6. 1.01 x 10 -5 \_\_\_\_\_\_\_ 5,000. \_\_\_\_\_\_\_
7. 100. \_\_\_\_\_\_\_ 6,051.0 \_\_\_\_\_\_\_
8. 22.04030 \_\_\_\_\_\_\_ 0.0005 \_\_\_\_\_\_\_
9. 0.0048 \_\_\_\_\_\_\_ 0.1020 \_\_\_\_\_\_\_
10. 100 \_\_\_\_\_\_\_ 10,001 \_\_\_\_\_\_\_

Round off each of the following numbers to 3 significant figures, and write the answer in standard notation:

1. 312.54 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 0.00031254 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 31,254,000 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 0.31254 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 31.254 x 10 -3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Use scientific notation to express the number 480 to:

1. 1 significant figure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 2 significant figures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 3 significant figures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 4 significant figures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Perform the following mathematical operations, and express each result to the correct number of significant figures:

1. 97.831 + 4.2502 + 0.99195 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 171.5 + 72.915 – 8.23 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 21.901 – 13.21 – 4.0215 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 1.00914 + 0.87104 + 1.2012 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 0.102 x 0.0821 x 273 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.01

25. 0.14 x (6.022 x 10 23) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

26. (4.01 x 10 4) x (5.021 x 10 -3) x (7.34993 x 10 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. (2.00 x 10 6) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(3.00 x 10 -7)

28. 4.184 x 100.62 x (25.27 – 24.16) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. (9.04 – 8.23 + 21.954 + 81.0) / 3.1416 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. 0.1654 + 2.07 + 2.114 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Determine the number of significant figures in each of the following:
   1. 20.57 mm \_\_\_\_\_\_\_\_\_\_\_\_\_\_ g. 5.40 kg \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. 90.81 mL \_\_\_\_\_\_\_\_\_\_\_\_\_\_ h. 120 pm \_\_\_\_\_\_\_\_\_\_\_\_\_
   3. 21 m \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ i. 105.8 cm \_\_\_\_\_\_\_\_\_\_\_\_
   4. 0.0094 g \_\_\_\_\_\_\_\_\_\_\_\_\_\_ j. 1000 m \_\_\_\_\_\_\_\_\_\_\_\_\_
   5. 150 cm \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ k. 101.0100 mm \_\_\_\_\_\_\_\_
   6. 150. cm \_\_\_\_\_\_\_\_\_\_\_\_\_\_ l. 0.00210 g \_\_\_\_\_\_\_\_\_\_\_\_
2. Rewrite the quantity 728,000,000,000,000 s to show:
   1. 1 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. 2 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. 3 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. 4SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. 5 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Rewrite the quantity 0.00000040913 m to show:
   1. 1 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. 2 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. 3 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. 4SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. 5 SF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Round each of the following numbers to 3 significant figures:
   1. 77.4861 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ e. 2.3765 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. 0.68961 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ f. 581.68 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. 3.024 x 10 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ g. 1.8950 x 10 -3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. 0.00657813 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ h. 0.01105209 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Underline each ZERO in each number that is significant.
   1. 2.03 e. 1.0030 i. 0.009
   2. 1.0 f. 967,000 j. 0.005
   3. 2.00 g. 5.10 k. 0.005670
   4. 0.00860 h. 0.000065 l. 780.00
6. How many significant figures do the following numbers have?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1234 |  | 0.023 |  | 890 |  |
| 91010 |  | 9010.0 |  | 1090.0010 |  |
| 0.00120 |  | 3.4 x 10 4 |  | 9.0 x 10 -3 |  |
| 9.010 x 10 -2 |  | 0.00030 |  | 1020010 |  |
| 780. |  | 1000 |  | 918.010 |  |
| 0.0001 |  | 0.00390 |  | 8120 |  |
| 7.991 x 10 -10 |  | 72 |  | 0.0224 |  |
| 3.000 |  | 4.530 |  | 54,000 |  |