

## Significant Figures Worksheet

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Use the rules of significant figures and rounding to determine the number of significant figures for measurements to complete this worksheet. See pages 46-50 and the Math Tutor (pg. 21) in your book.

- A. For each of the following numbers, indicate how many significant figures there are. Then round each of them to the number of significant figures indicated.

- 1.234 cm has 4 significant figures and rounded to 2 significant figures is 1.2 cm.
1. 0.6034 g has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
2. 12,700 L has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
3. 12,7001.0 mg has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
4. 0.0000983 g has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
5. 200,800 km has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
6. 10.0005 m has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
7. 21.589 mL has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.
8.  $6.02 \times 10^{23}$  atoms has \_\_\_\_\_ significant figures and rounded to 2 significant figures is \_\_\_\_\_.

- B. The following number sequences represent calculations done on a calculator with the answer given as the calculator would show it. Write the answers with the appropriate number of significant figures for the measurements made.

- 6.00 sec x 3.00 sec = 18 sec<sup>2</sup> The answer should be 18.0 sec<sup>2</sup>.
1. 23.00°C + 46.00°C = 69°C The answer should be \_\_\_\_\_.
2. 23.0 cm + 46.0 cm = 69 cm The answer should be \_\_\_\_\_.
3. 253 m + 345.8 m = 598.8 m The answer should be \_\_\_\_\_.
4. 56.0 L – 35.0 L = 21 L The answer should be \_\_\_\_\_.
5. 56.00 g – 35.00 g = 21 g The answer should be \_\_\_\_\_.
6. 16 mm x 12 mm = 192 mm<sup>2</sup> The answer should be \_\_\_\_\_.
7. 3.24 m x 5.63 m = 18.2412 m<sup>2</sup> The answer should be \_\_\_\_\_.
8. 3.20 g / 4.0 mL = 0.8 g/mL The answer should be \_\_\_\_\_.
9. 8.12 g / 5.0 mL = 1.624 g/mL The answer should be \_\_\_\_\_.
10. 59.0 cm x 5.01 cm = 295.59 cm<sup>2</sup> The answer should be \_\_\_\_\_.

## Scientific Notation Worksheet

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Many of the numbers that you will be working with in Chemistry will be very large or very small. It is easier to use **scientific notation** than to work with the large numbers involved. For example, 1,000,000,000 cm and  $1 \times 10^9$  cm mean the same thing, but the scientific notation,  $1 \times 10^9$  cm, is easier to use. YOU WILL NEED TO KNOW HOW TO USE YOUR CALCULATOR TO SOLVE THESE PROBLEMS.



***Don't forget Units and Significant Figures!!!***

**I. Write the following in scientific notation or, if they are in scientific notation, as regular numbers.**

1. 56,000 L \_\_\_\_\_
2. 0.00725 cg \_\_\_\_\_
3. 555,000,000 g \_\_\_\_\_
4. 0.000000625 mg \_\_\_\_\_
5.  $1.85 \times 10^5$  kg \_\_\_\_\_
6.  $7.25 \times 10^{-6}$  kg \_\_\_\_\_

**II. Solve the problems, then express the answer in scientific notation.**

7. Add  $3.00 \times 10^5$  L and  $5 \times 10^5$  L \_\_\_\_\_
8. Add  $4.50 \times 10^4$  g and  $3.0 \times 10^5$  g \_\_\_\_\_
9. Subtract  $2.5 \times 10^4$  mL from  $7.50 \times 10^5$  mL \_\_\_\_\_
10. Subtract  $3.0 \times 10^4$  kg from  $5.00 \times 10^5$  kg \_\_\_\_\_
11. Multiply 8100 m by  $7.50 \times 10^5$  m \_\_\_\_\_
12. Multiply  $2.50 \times 10^3$  cm by 520 cm \_\_\_\_\_
13. Divide 9600 kg by  $3.00 \times 10^{-3}$  kL \_\_\_\_\_
14. Divide  $1.6 \times 10^{-5}$  g by  $2.000 \times 10^{-4}$  L \_\_\_\_\_
15. Divide  $1.60 \times 10^5$  m by  $2.0 \times 10^{-4}$  sec \_\_\_\_\_