

Honors Chem WKS
Significant Figures in Calculations

NAME Answer Key
Period _____ Date _____

A. Rounding

Round each of the following to 3 significant figures.	Round each of the following to 4 significant figures.
1) <u>98.4</u> 73 m 98.5 m	2) <u>4.598</u> 12 mm 4.598 mm
3) 0.000 <u>763</u> 21 mm 0.000763 mm	4) 0.00 <u>9424</u> 9 g 0.009425 g
5) <u>57.0</u> 48 g 57.0 g	6) <u>20.49</u> 8 kg 20.50 kg
7) <u>12.1</u> 5 g 12.2 g	8) <u>6.820</u> 35×10 ³ L 6.820×10 ³ L
9) <u>7.49</u> 830×10 ⁻⁴ mm 7.50×10 ⁻⁴ mm	10) <u>45.69</u> 8 km (be careful!) 4.570×10 ⁴ km
11) <u>874</u> .5 °C 875 °C	12) 0. <u>3199</u> 5 mg 0.3200 mg

B. Calculations

Give the results of the following problems. First show the full answer in your calculator, then round to the correct number of significant figures. Be sure to include the proper units! Units can be multiplied or divided, but in addition and subtraction all units and exponents must be the same and the answer is in the same units. Indicate how you are rounding (# of SF or decimal place).

Ex. $85.8 \text{ mm} \times 207.9 \text{ mm} = 17837.82 \text{ mm}^2 \rightarrow 17800 \text{ mm}^2$ (3 SF)

13) $12.8 \text{ m} \times 5.2 \text{ m} = 66.56 \text{ m}^2 \rightarrow 67 \text{ m}^2$ (2 sig. figs.)

14) $100 \text{ pencils} \times 8.57 \text{ g/pencil} = 857 \text{ g}$ (3 sig. figs.)
count

15) $0.00005 \text{ cm} \times 538 \text{ cm}^2 = 0.0269 \text{ cm}^3 \rightarrow 0.03 \text{ cm}^3$ (1 sig. fig.)

16) $6008 \text{ cm}^3 \div 8.724 \text{ cm} = 688.6749198 \text{ cm}^2 \rightarrow 688.7 \text{ cm}^2$ (4 sig. figs.)

17) $72 \text{ cm} \div 7 \text{ rods} = 10.28571429 \text{ cm/rod} \rightarrow 10. \text{ cm/rod}$ or $1.0 \times 10^1 \text{ cm/rod}$ (2 sig figs.)
count

18) $600 \text{ g} \div 38 \text{ mL} = 15.78947368 \text{ g/mL} \rightarrow 20 \text{ g/mL}$ (1 sig fig)

19) $357.89 \text{ g} + 0.002 \text{ g} = 357.892 \text{ g} \rightarrow 357.89 \text{ g}$ (addition: hundredths place)

20) $17.95 \text{ m} + 32.42 \text{ m} + 50 \text{ m} = 100.37 \text{ m} \rightarrow 1.0 \times 10^2 \text{ m}$ (tens place)

21) $5.5 \text{ mL} + 3.7 \text{ mL} + 2.97 \text{ mL} = 12.17 \text{ mL} \rightarrow 12.2 \text{ mL}$ (tenths place)

22) $84.675 \text{ cm} - 3 \text{ cm} = 81.675 \text{ cm} \rightarrow 82 \text{ cm}$ (ones place)

23) $75 \text{ }^\circ\text{C} - 2.55 \text{ }^\circ\text{C} = 72.45 \text{ }^\circ\text{C} \rightarrow 72 \text{ }^\circ\text{C}$ (ones place)

24) $10 \text{ g} - 9.9 \text{ g} = 0.1 \text{ g} \rightarrow 0 \text{ g}$ (tens place!)