

Rule for Multiplying and Dividing Limit and round to the least number of significant figures of any of the factors.

Example: $23.0 \text{ cm} \times 432 \text{ cm} \times 19 \text{ cm} = 188,784 \text{ cm}^3 = 190,000 \text{ cm}^3$ since 19 cm has only two significant figures

Rule for Adding and Subtracting Limit and round your answer to the least number of decimal places

Example: $123.25 \text{ mL} + 46.0 \text{ mL} + 86.257 \text{ mL} = 255.507 \text{ mL} = 255.5 \text{ mL}$ since 46.0 mL has only one decimal place

Perform the following operations expressing the answer in the correct number of significant figures.

1. $1.35 \text{ m} \times 2.467 \text{ m} =$ _____
2. $1,035 \text{ m}^2 / 42 \text{ m} =$ _____
3. $12.01 \text{ mL} + 35.2 \text{ mL} + 6 \text{ mL} =$ _____
4. $55.46 \text{ g} - 28.9 \text{ g} =$ _____
5. $0.15 \text{ cm} + 1.15 \text{ cm} + 2.051 \text{ cm} =$ _____

Complete the following calculations. Include units on your answers.

1. $\frac{(54 \text{ g})}{(4 \text{ L})}$
2. $(34 \text{ cm}) (21 \text{ cm}) (8 \text{ cm})$
3. $\frac{(12 \text{ kg}) (30 \text{ m})}{(10 \text{ s})}$
4. $\frac{(75 \text{ kg}) (5.0 \text{ m})}{(2.5 \text{ s}) (6.0 \text{ s})}$
5. $56 \text{ N} \times 2.5 \text{ m}$
6. $\frac{12700 \text{ J}}{(116 \text{ g}) (4.8^\circ\text{C})}$

Use the exponent function on your calculator to compute the following and answer in scientific notation.

1. $(4.1 \times 10^{23}) (8.0 \times 10^3)$
2. $(3.2 \times 10^4) / (6.8 \times 10^3)$
3. $(3.6 \times 10^4) (13)$
4. $(4.6 \times 10^3) / (9.8)$

5. $(298) / (2.7 \times 10^{-2})$

6. $(4.7 \times 10^{-4}) (1.1 \times 10^{-3})$

Metric Conversions (Must show work as in worked example below.)Worked Example 500 mL = ?? L Calculations: $500 \text{ mL} \times (1\text{L}/1000 \text{ mL}) = 0.5 \text{ L}$ **Practice Problems**

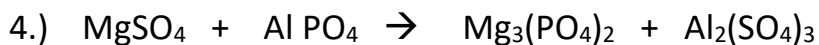
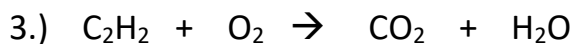
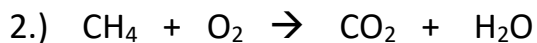
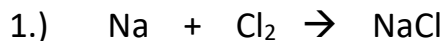
1. $500 \text{ g} = ?\text{kg}$

2. $25 \text{ cm} = ?\text{mm}$

3. $5 \text{ L} = ?\text{mL}$

4. $15 \text{ km} = ?\text{mm}$ (Hint: this is a two step process)

5. $25000 \text{ mL} = ?\text{kL}$ (Hint: this is a two step process)

Balance the following chemical equations:

Density Calculations:

1.) Calculate the density of an object with a mass of 25.0 g and a volume of 4.55 cm³.

2.) Water has a density of 1.0 g/mL. What volume of water has a mass of 250 g ?