

Name: _____ Period: _____ Date: _____

- State the number of significant figures in each of the following measurements.
 - 2.54 cm _____
 - 32.06 kg _____
 - 5400 m _____
 - 4.5×10^3 g _____
 - 0.02 km _____
 - 2006 s _____
 - Solve the following problems and give the answer to the correct number of significant figures.
 - $432.2 \text{ m} + 24.04 \text{ m} =$ _____
 - $324.54 \text{ cm} - 25.6 \text{ cm} =$ _____
 - $82.3 \text{ m} \times 1.254 \text{ m} =$ _____
 - $(1.2 \times 10^6 \text{ m})(3.25 \times 10^4 \text{ m}) =$ _____
 - $\frac{32.6 \text{ kg}}{125.4 \text{ L}} =$ _____
 - $\frac{4.24 \times 10^4 \text{ kg}}{2.2 \times 10^4 \text{ L}} =$ _____
 - Express the following numbers in scientific notation so that they each only have 2 significant figures.
 - 560 = _____
 - 0.0048 = _____
 - 43 200 = _____
 - 4 320 000 = _____
 - 0.00065 = _____
 - 101.35 = _____
 - Carryout the following metric conversions using unit analysis. Show your work & write answers in scientific notation with 2 significant figures.
 - 35 mm into m
 - 250 km into cm
 - 543 mg into kg
 - 1500 μg into g
 - 172800 s into days
 - 110 km/h into m/s
 - Solve the following addition and subtraction problems. Convert all numbers to the same power of ten first.
 - $4.5 \times 10^7 + 6.45 \times 10^7 =$
 - $5.4 \times 10^7 + 7.8 \times 10^6 =$
 - $7.8 \times 10^{-6} - 8.4 \times 10^{-7} =$
 - $2.3 \times 10^4 - 4.2 \times 10^3 =$
 - Solve the following multiplication and division problems.
 - $(1.2 \times 10^7)(1.2 \times 10^4) =$
 - $(2.0 \times 10^6)(3.5 \times 10^{-9}) =$
 - $\frac{6.0 \times 10^7}{1.5 \times 10^2} =$
 - $\frac{(5.5 \times 10^{-5})(6.0 \times 10^4)}{(2.1 \times 10^4)} =$

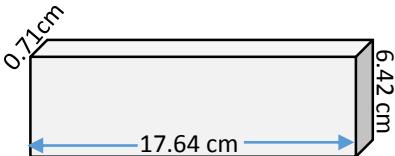
Word Problems: Use the GRASS method to solve the following.

7. The sun is 1.49×10^{11} meters away and light travels at 3.00×10^8 meters per second. Calculate how long it takes light from the Sun to reach the Earth. Express your answer in scientific notation with the appropriate number of significant figures. Use the formula $d = vt$ from Science 10 (remember v = speed).

8. An electron has a mass of 9.11×10^{-31} kg. Calculate the mass of 6.02×10^{23} electrons.

9. The measurements listed below were made on the rectangular solid pictured.

- Calculate the area of the top surface to the proper number of significant figures.
- Calculate the volume of the block to the proper number of significant figures.



10. When filled, a cubic tank contains 1 m^3 of water. Express this volume in cm^3 , writing your answer in scientific notation.

11. Determine the density of a metallic rectangular solid with a mass of 1.44×10^{-3} kg has sides of the following dimensions. ($\text{density} = \frac{\text{mass}}{\text{volume}}$)

$$\text{Length} = 4.0 \times 10^{-2} \text{ m}$$

$$\text{Width} = 1.0 \times 10^{-2} \text{ m}$$

$$\text{Height} = 5.0 \times 10^{-3} \text{ m}$$

12. Rank the following mass measurements from smallest to largest. (Convert then compare)

$$0.61 \times 10^3 \text{ g}$$

$$7.2 \times 10^8 \mu\text{g}$$

$$0.02 \text{ kg}$$

$$14.1 \times 10^1 \text{ cg}$$

$$5.62 \times 10^{-2} \text{ mg}$$

Rearranging Equations

13. Solve for t:

$$v = \frac{d}{t}$$

14. Solve for x:

$$y = mx + b$$

15. Solve for a:

$$F = ma$$

16. Solve for t:

$$v_f = v_i + at$$

17. Solve for v_i :

$$d = v_i t + \frac{1}{2} a t^2$$

18. Solve for v_f :

$$d = \frac{(v_f + v_i)t}{2}$$