

### Chapter 3 Practice Sheet

Express the following numbers in scientific notation.

- 1) 790,000
- 2) 0.00003
- 3) 0.05030

Write the following in long form. Reverse of the previous three problems.

- 4)  $3.25 \times 10^{-4}$
- 5)  $4.443 \times 10^6$
- 6)  $1.67 \times 10^0$

Determine the number of significant figures in the following.

- |                            |               |
|----------------------------|---------------|
| 7) 0.000032 g              | 10) 7.500 mL  |
| 8) $3.92 \times 10^{-2}$ g | 11) 12.003 mg |
| 9) 1000.003 g              | 12) 12300 mg  |

Solve the following problems and observe significance.

- 10)  $12 \text{ cm} + 0.031 \text{ cm} + 7.969 \text{ cm}$
- 11)  $3.40 \text{ mg} \times 2.2 \text{ mg}$
- 12)  $145.63 \text{ mL} - 28.9 \text{ mL}$
- 13)  $0.00510 \text{ cm} \times 2.525 \text{ cm}$
- 14)  $17.2 \text{ mm} + 1.75 \text{ mm} + 0.0025 \text{ mm}$

Solve the following problems using dimensional analysis.

- 15) Change 345.7 nanograms into milligrams
- 16) A blacksmith has to put new shoes on a stable of 20 horses. Each shoe requires 3 nails. How many nails must the blacksmith buy?
- 17) Light travels at a speed of 186,000 miles/second. How many kilometers will it travel in two hours? (1 km = 0.6 miles)
- 18) What is the volume in Liters of a swimming pool that has the dimensions 15 cm x 32 m x 17.2 cm?

Solve the following problems using the equation for density.

- 19) What is the mass, in kilograms, of 14.0 L of gasoline? (density of gasoline is  $0.680 \text{ g/cm}^3$ )
- 20) A block of wood has a density of  $0.897 \text{ g/cm}^3$ . The block has a mass of 12.9 g. What is the volume of the block?
- 21) A 75 mL flask can hold 90 g of an unknown liquid. What is the density of this liquid? Will it sink or float in water?