

Chemistry 105 Fundamental Chemistry

Math & Calculator Practice

- 1) Rearrange each of the equations below such that the designated variable is alone on one side of the equation:

		solve for:
a)	$d = \frac{m}{V}$	m
b)	$c_1V_1 = c_2V_2$	V_2
c)	$PV = nRT$	n
d)	$M = \frac{\left(\frac{m}{M_W}\right)}{V}$	m
e)	$q = mC\Delta T$	C
f)	$\Delta H = \frac{-C\Delta T}{\left(\frac{m}{M_W}\right)}$	C
g)	$F = 1.8C + 32$	C
h)	$P = 100\left(\frac{A}{A + B + C}\right)$	C

- 2) Write each of the following as a number and enter in your calculator:

a) 10^9 b) 10^{-3} c) 10^{-6} d) 10^{23} e) $1050. \times 10^{-3}$ f) 0.044×10^2

- 3) Perform the following calculations on your calculator and express the answer in scientific notation:

$$\left(0.0346 - 0.00258 \right) \left(6.02 \times 10^{23} \right) \quad \frac{0.0583}{2.20 \times 10^{-4}} \quad \frac{\left(8.21 \times 10^{-2} \right) \left(37.8 + 273.2 \right)}{\left(\frac{(30.0)(25.4)}{760.0} \right)}$$

- 4) A serving of food contains 50.0 grams of carbohydrate, 9.00 grams of protein, and 16.0 grams of fat. What percentage of the total mass is each kind of food? If the same size serving is 1/3 carbohydrate and 1/4 protein, how many grams of each kind of food would it contain?

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ANSWERS

1)

$$m = dV$$

$$C = \frac{q}{m \Delta T}$$

$$V_2 = \frac{c_1 V_1}{c_2}$$

$$C = \frac{\Delta H_m}{M_W \Delta T}$$

$$n = \frac{PV}{RT}$$

$$C = \frac{F \Delta 32}{1.8}$$

$$m = M M_W V$$

$$C = 100 \left(\frac{A}{P} \right) \Delta A \Delta B$$

- 2) a) 1000000000. b) 0.001 c) 0.000001 d) 1000000000000000000000000.
e) 1.050 f) 4.4

- 3) 1.93 X 10²² 2.65 X 10² 2.55 X 10¹

- 4) 66.7% carbohydrate; 12.0% protein; 21.3% fat
25.0 grams carbohydrate; 18.8 grams protein; 31.2 grams fat