

CHM 151 Quiz 1b 25 Pts Fall 2007 Name: Key

Conversion factors: $k = 10^3$ $c = 10^{-2}$ $m = 10^{-3}$ $n = 10^{-9}$ $hr = 60 \text{ min}$ $1 \text{ min} = 60 \text{ sec}$ $1 \text{ mile} = 5280 \text{ ft}$ $1 \text{ ft} = 12 \text{ inches}$ $2.54 \text{ cm} = 1 \text{ inch}$

1. (6 Pts) A car is traveling at speed of 43 kilometers per hour. Determine its speed in ft per second.

$$\frac{43 \cancel{\text{ km}}}{\cancel{\text{ hr}}} \times \frac{10^3}{\cancel{\text{ m}}} \times \frac{1 \cancel{\text{ in}}}{2.54 \times 10^{-2} \cancel{\text{ m}}} \times \frac{1 \text{ ft}}{12 \cancel{\text{ in}}} \times \frac{1 \cancel{\text{ hr}}}{3600 \text{ s}} = 39 \frac{\text{ft}}{\text{s}}$$

↑
(same as "c")

2. (6 Pts)

a. Give the symbol and name for two elements that would be classified as non-metals:

b. Give the symbol and name for two elements that would be classified as metalloids:

c. Give the symbol and name for two elements that would be classified as metals:

3. (9 Pts) Complete the following table.

Element or ION	Number of protons	Number of neutrons	Number of electrons
Sodium-24	11	24-11 13	11
Potassium-39	19	39-19 20	19
A chloride-35 <u>ion</u>	17	35-17 18	18

↳ extra e⁻ for Cl⁻ →

4. (4 Pts) Rank the elements, iron, potassium, and bromine from largest to smallest (by atomic radii).

K Fe Br

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1. (6 Pts) A car is traveling at speed of 28 kilometers per hour. Determine its speed in ft per second.

$$\frac{28 \cancel{\text{ km}}}{\cancel{\text{ hr}}} \times \frac{10^3 \cancel{\text{ m}}}{\cancel{\text{ km}}} \times \frac{1 \cancel{\text{ in}}}{2.54 \times 10^{-2} \cancel{\text{ m}}} \times \frac{1 \text{ ft}}{12 \cancel{\text{ in}}} \times \frac{1 \cancel{\text{ hr}}}{3600 \cancel{\text{ s}}} = 25.5 \frac{\text{ft}}{\text{s}}$$

$\frac{26 \text{ ft}}{\text{s}}$

2. (6 Pts)

a. Give the symbol and name for two elements that would be classified as metals:

b. Give the symbol and name for two elements that would be classified as non-metals:

c. Give the symbol and name for two elements that would be classified as metalloids:

3. (9 Pts) Complete the following table.

Element or ION	Number of protons	Number of neutrons	Number of electrons
Sodium-23	11	²³⁻¹¹ 12	11
Phosphorous-31	15	³¹⁻¹⁵ 16	15
A chloride-37 <u>ion</u>	17	³⁷⁻¹⁷ 20	18

4. (4 Pts) Rank the elements, iron, potassium, and bromine from smallest to largest (by atomic radii).

Br Fe K