Name: _____ Block:_ Date:__Dimensional Analysis Homework

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95. Calculate the number of moles in each of the following masses.

c. 0.255 g of sulfur

$$0.255\ g\ S \left| \frac{1\ mole\ S}{32.07\ g\ S} \right. = 0.00795\ mole\ S$$

d. 850.5 g of zinc

$$850.5\ g\ Zn \left| \frac{1\ mole\ Zn}{65.39\ g\ Zn} \right. = 13.01\ mole\ Zn$$

96. Calculate the mass of each of the following amounts.

c. 0.275 mol mercury

$$0.275\ mol\ Hg \left| \frac{200.59\ g\ Hg}{1\ mole\ Hg} \right. = 55.2\ g\ Hg$$

d. 9.37 X 10^{-3} mol magnesium

$$9.37 \times 10^{-3}\ mol\ Mg \left| \frac{24.31\ g\ Mg}{1\ mol\ Mg} \right. = 0.228\ g\ Mg$$

97. Calculate the amount in moles in each of the following quantities.

c. 5,700,000,000 atoms of lead

$$5.7 \times 10^{9}\ atom\ Pb \left| \frac{1\ mole\ Pb}{6.02 \times 10^{23}\ atom\ Pb} \right.$$

$$9.5 \times 10^{-15}\ mole\ Pb$$

d. 2.997 X 10^{25} atoms of vanadium

$$2.997 \times 10^{25}\ atom\ V \left| \frac{1\ mole\ V}{6.02 \times 10^{23}\ atom\ V} \right.$$

$$49.8\ mole\ V$$

98. Calculate the number of atoms in each of the following amounts.

c. 0.000 000 2 mol helium

$$2 \times 10^{-7} \text{ mole He} \left| \frac{6.02 \times 10^{23} \text{ atom He}}{1 \text{ mole He}} \right. = \boxed{1 \times 10^{17} \text{ atom He}}$$

d. 32.6 mol strontium

$$32.6 \text{ mol Sr} \left| \frac{6.02 \times 10^{23} \text{ atom Sr}}{1 \text{ mole Sr}} \right. = \boxed{1.96 \times 10^{25} \text{ atom Sr}}$$

99. Calculate the number of atoms in each of the following masses.

c. 0.697 g of gallium

$$0.697 \text{ g Ga} \left| \frac{1 \text{ mole Ga}}{69.72 \text{ g Ga}} \right| \frac{6.02 \times 10^{23} \text{ atom Ga}}{1 \text{ mole Ga}}$$

$\boxed{6.02 \times 10^{21} \text{ atom Ga}}$

d. 0.000 000 0202 g of beryllium

$$2.02 \times 10^{-8} \text{ g Be} \left| \frac{1 \text{ mole Be}}{9.01 \text{ g Be}} \right| \frac{6.02 \times 10^{23} \text{ atom Be}}{1 \text{ mole Be}}$$

$\boxed{1.35 \times 10^{5} \text{ atom Be}}$

100. Calculate the mass of the following numbers of atoms.

c. 1.506 X 10^{24} atoms of argon

$$1.506 \times 10^{24} \text{ atom Ar} \left| \frac{1 \text{ mole Ar}}{6.02 \times 10^{23} \text{ atom Ar}} \right| \frac{39.95 \text{ g Ar}}{1 \text{ mole Ar}}$$

$\boxed{99.9 \text{ g Ar}}$

d. 1.20 X 10^{25} atoms of helium

$$1.20 \times 10^{25} \text{ atom He} \left| \frac{1 \text{ mole He}}{6.02 \times 10^{23} \text{ atom He}} \right| \frac{4.00 \text{ g He}}{1 \text{ mole He}} =$$

$\boxed{79.7 \text{ g He}}$