Chemistry 115 Name key

Dr. Cary Willard

Quiz 4a (20 points) March 2, 2010

Must show all work to receive credit. Use proper significant figures.

Avogadro’s number – 6.022 x 1023 particles/mol

1. (4 points) How many atoms of silver are in a 0.578 mol sample of silver?

$$?atoms Ag=0.578 mol Ag×\frac{6.022×10^{23}atom Ag}{1 mol Ag}=3.48 ×10^{23}atom Ag$$

1. (4 points) A chunk of sugar contains 6.87 x 1026 molecules. How many moles of sugar are there in the sample?

$$?mol sugar=6.87×10^{26}molec sugar×\frac{1 mol sugar}{6.022×10^{23}molec sugar}=1.14×10^{3} mol sugar (1140 mol)$$

1. (4 points) How many moles of chromium are in a 72.4 g sample of chromium?

$$?mol Cr=72.4 g Cr×\frac{1 mol Cr}{51.996 g Cr}=1.39 mol Cr$$

1. (4 points) How many atoms of sodium are there in a 6.00 g sample of sodium?

$$?atom Na=6.00 g Na×\frac{1 mol Na}{23.00 g Na}×\frac{6.022×10^{23}atom Na}{1 mol Na}=1.57×10^{23}atom Na$$

1. (4 points) What is the molar mass of barium phosphite, Ba3(PO3)2?

$$molar mass=3 Ba+2 P+6 O=3\left(137.3 amu\right)+2\left(30.97 amu\right)+ 6\left(16.00 amu\right)$$

$$=411.9 amu+61.94amu+96.00 amu$$

$$=569.8 amu or 569.8 g/mol$$

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Quiz 4b (20 points) March 2, 2010

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Avogadro’s number – 6.022 x 1023 particles/mol

1. (4 points) How many atoms of silver are in a 0.384 mol sample of silver?

$$?atoms Ag=0.384 mol Ag×\frac{6.022×10^{23}atom Ag}{1 mol Ag}=2.31 ×10^{23}atom Ag$$

1. (4 points) A chunk of sugar contains 3.49 x 1026 molecules. How many moles of sugar are there in the sample?

$$?mol sugar=3.49×10^{26}molec sugar×\frac{1 mol sugar}{6.022×10^{23}molec sugar}=5.80×10^{2} mol sugar (580 mol)$$

1. (4 points) How many moles of chromium are in a 68.4 g sample of chromium?

$$?mol Cr=68.4 g Cr×\frac{1 mol Cr}{51.996 g Cr}=1.32 mol Cr$$

1. (4 points) How many atoms of sodium are there in a 8.00 g sample of sodium?

$$?atom Na=8.00 g Na×\frac{1 mol Na}{23.00 g Na}×\frac{6.022×10^{23}atom Na}{1 mol Na}=2.09×10^{23}atom Na$$

1. (4 points) What is the molar mass of strontium phosphite, Sr3(PO3)2?

$$molar mass=3 Sr+2 P+6 O=3\left(87.62 amu\right)+2\left(30.97 amu\right)+ 6\left(16.00 amu\right)$$

$$=262.9 amu+61.94amu+96.00 amu$$

$$=420.8 amu or 420.8 g/mol$$