Chemistry 115 Name

Dr. Cary Willard

Quiz 8A (20 points) April 16, 2009

PV=nRT, 760 torr = 760 mmHg = 1 atm = 101 kPa = 14.7 psi = 30 in Hg,

R=0.0821 L atm/mol K=62.4 L torr/mol K

1. (4 points) Draw a lewis electron dot structure for nitrogen trichloride, NCl3.



1. (4 points) Draw a lewis electron dot structure for sulfur dioxide, SO2. (You should get 2 resonance structures.)



1. (3 points) Why is it dangerous to incinerate an aerosol can?

When you increase the temperature of the gas inside the aerosol can, you increase both the volume and the pressure also increase which increases the risk of an explosion.

1. (3 points) The pressure of a sample of neon gas is 639 torr. What is the pressure in atmospheres?

$$?atm=639 torr×\frac{1 atm}{760 torr}=0.841 atm$$

1. (3 points) A sample of nitrogen gas occupies a volume of 362 mL at 0.824 atm pressure. What is the volume of the nitrogen gas if the pressure is increased to 1.07 atm?

$$P\_{1}V\_{1}=P\_{2}V\_{2}\rightarrow \rightarrow V\_{2}=V\_{1}\left(\frac{P\_{1}}{P\_{2}}\right)=362 mL\left(\frac{0.824 atm}{1.07 atm}\right)=$$

1. (3 points) A sample of methane gas contains 3.92 moles of methane at 2.94 atm pressure and 25.0oC. What is the volume of the gas?

$PV=nRT\rightarrow \rightarrow V=\frac{nRT}{P}=\frac{\left(3.92 mol\right)\left(0.0821 L atm\right)\left(298 K\right)}{\left(2.94 atm\right)mol K}=$

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Quiz 8B (20 points) April 16, 2009

PV=nRT, 760 torr = 760 mmHg = 1 atm = 101 kPa = 14.7 psi = 30 in Hg,

R=0.0821 L atm/mol K=62.4 L torr/mol K

1. (4 points) Draw a lewis electron dot structure for nitrogen trichloride, NCl3.



1. (4 points) Draw a lewis electron dot structure for sulfur dioxide, SO2. (You should get 2 resonance structures.)



1. (3 points) Why is it dangerous to incinerate an aerosol can?

When you increase the temperature of the gas inside the aerosol can, you increase both the volume and the pressure also increase which increases the risk of an explosion.

1. (3 points) The pressure of a sample of neon gas is 834 torr. What is the pressure in atmospheres?

$$?atm=834 torr×\frac{1 atm}{760 torr}=1.10 atm$$

1. (3 points) A sample of nitrogen gas occupies a volume of 529 mL at 0.824 atm pressure. What is the volume of the nitrogen gas if the pressure is increased to 1.07 atm?

$$P\_{1}V\_{1}=P\_{2}V\_{2}\rightarrow \rightarrow V\_{2}=V\_{1}\left(\frac{P\_{1}}{P\_{2}}\right)=529 mL\left(\frac{0.824 atm}{1.07 atm}\right)=$$

1. (3 points) A sample of methane gas contains 6.87 moles of methane at 3.94 atm pressure and 25.0oC. What is the volume of the gas?

$$PV=nRT\rightarrow \rightarrow V=\frac{nRT}{P}=\frac{\left(6.87 mol\right)\left(0.0821 L atm\right)\left(298 K\right)}{\left(3.94 atm\right)mol K}=$$