**IB Physics**

**FA 13.1 - Ideal Gas Law**

Name New Age Name

Show your work, round to the correct significant figures, circle your answers, and label them with units.

(1 atm = 1.013x105 Pa = 101.3 kPa = 14.7 psi = 760 Torr; 1 m3 = 1000 liters; pabsolute = pgauge + 1 atm; )

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| 1. Convert 1340. Torr absolute to gauge pressure psi. (11.2 psi gauge ) | Convert 87.3 kpa gauge to Torr absolute (1415 Torr absolute) |

2. Fred has 1.65 mols of methane gas at 87.2 oC at 56.3 kPa (1 kPa = 1000 Pa). What is the **volume** it occupies? (.0878 m3)

3. Maryland has 217 grams of Neon (molar mass 20.1797 g/mol) gas in 519 liters at **gauge** pressure of 6.97x104 Pa. What must the **temperature** be in **Celsius**? (1000 liters = 1 m3) (720. oC)

4. An aerosol can is at an absolute pressure of 381 Boogalas when it is at 293 K. If I put it in liquid nitrogen and lower its temperature to 77.0 K, what is the new **pressure** in Boogalas? (1000 milli Boogalas = 1 Boogala) (Assume it does not leak, and the volume remains constant) (100. Boogalas)

5. A Helium tank contains 3.42 kg of helium and is at a gauge pressure of 145 psi. What will be the **gauge** **pressure** when you have released 1.13 kg of helium? (92.2 psi) (Hint - don't use 1.13, that's not how much you have left.... Think about it)