

**Problem of the Day 3      CHEM 1252**

1. What is the density of gaseous SF<sub>6</sub> at a pressure of 0.966 atm and a temperature of 20 °C?

10

2. A fixed amount of Kr gas occupies 95.0 mL at 0.650 atm. If the temperature remained constant, what volume would the Kr occupy at 0.350 atm?

10

3. The root mean square speed for Cl<sub>2</sub> at 298 K is 323 m s<sup>-1</sup>. For F<sub>2</sub> to have the same root mean square speed, would its temperature be greater than or less 298 K? You must justify your answer.

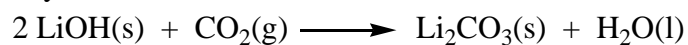
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4. How many mols of  $N_2$  can produced from the decomposition of 48.3 L of  $NH_3$  at 450 °C and 4.2 atm?



8

5. A person exhales about 580.0 L of  $CO_2$  per day at STP. The  $CO_2$  exhaled by an astronaut is absorbed from the air of a space capsule by reaction with LiOH:



How many kilograms of LiOH are required per astronaut per day?

8