

**Answers**

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1. Ammonia (NH<sub>3</sub>) is synthesized through the combination of hydrogen and nitrogen gases. What mass of nitrogen gas must be reacted to create ammonia at 3.00 atm in a 2.50 L flask at 100. °C? *Hint: write a balanced equation!* (6 pts)

**3.43 g**

2. Calculate the density (g/L) of gaseous phosphorus pentachloride at STP to three significant figures. (5 pts)

**9.30 g/L**

3. What volume of O<sub>2</sub>, measured at 44.3 °C and 766 mm Hg, will be produced by the decomposition of 4.27 g NaClO<sub>3</sub>? (5 points)



**V = 1.56 L**

4. The lid is tightly sealed on a rigid flask containing 3.50 L H<sub>2</sub> at 17.0 °C and 694 torr. If the flask is heated to 71 °C, what is the pressure in the flask in atm? (4 points)

**P<sub>2</sub> = 1.08 atm**      *also: 823 torr*