NAME _____ DATE _____ CLASS _____

Section 9-4

HOLT PHYSICS

Concept Review

Properties of Gases

A volume of 2.40×10^{-3} m^3 of hydrogen gas is enclosed in a cylinder with a movable piston at 300 K under a pressure of 203 kPa (2.00 atm). The density of hydrogen under these conditions is 0.180 kg/m^3.

1. Calculate the mass of hydrogen in the cylinder.

2. The gas is cooled down to 150 K, and the pressure is increased to 609 kPa (6.00 atm). Calculate the volume in the gas.

3. What is the ratio of the final and initial temperature? pressure? volume?

4. How did an increase in pressure affect the volume? How did the decrease in temperature affect the volume?

5. Did the mass of hydrogen in the cylinder increase or decrease? Explain.

6. Find the density of hydrogen in the cylinder after the process. Has it increased or decreased? In what ratio?