Angeles City Science High School

Science 10

Name: Paul Gerald D. Pare **Section:** 10-Hawking

Activity 5. Apply Me!

Objective: Apply the concept of Boyle's Law in worded problems. Facilitate mastery of concepts on the volume-pressure relationship:

A. Solve the following Boyle's Law worded problem. Identify the following a) given b) Unknown c) Formula d) Solution e) Answer

1. Oxygen gas inside a 1.5 L gas tank has a pressure of 0.95 atm. Provided that the temperature remains constant, how much pressure is needed to reduce its volume by 1/2?

Given: $P_1 = 0.95 atm, V_1 = 1.5 L, V_2 = 0.75 L$
Unknown: $P_2 = ?$
Formula: $P_2 = \frac{P_1 V_1}{V_2}$

Solution: $P_2 = \frac{0.95 * 1.5}{0.75} = 1.9 atm$
Answer: 1.9 atm

2. A scuba diver needs a diving tank to provide breathing gas while he is underwater. How much pressure is needed for 6.00 liters of gas at 1.01 atmospheric pressure to be compressed in a 3.00-liter cylinder?

Given: $P_1 = 1.01 atm, V_1 = 6 L, V_2 = 3 L$
Unknown: $P_2 = ?$
Formula: $P_2 = \frac{P_1 V_1}{V_2}$

Solution: $P_2 = \frac{1.01 * 6}{3} = 2.02 atm$
Answer: 2.02 atm