

Answer on question #62218, Chemistry / General Chemistry

1) At a pressure 48 kPa, the gas in a cylinder has a volume of 15 liters. Assuming temperature remains the same, if the volume of the gas is decreased to 8 liters, what is the new pressure? kPa

Solution:

Since isothermal process $T = \text{const}$, we use the Boyle's law

$$V_1 P_1 = V_2 P_2$$

$$P_2 = \frac{V_1 P_1}{V_2}$$

$$P_2 = \frac{15 \text{ L} \times 48 \text{ kPa}}{8 \text{ L}} = 90 \text{ kPa}$$

Answer: 90 kPa

2) The gas in a cylinder has a volume of 4 liters at a pressure of 116 kPa. The pressure of the gas is increased to 222 kPa. Assuming the temperature remains constant, what would the new volume be? L

Solution:

Since isothermal process $T = \text{const}$, we use the Boyle's law

$$V_1 P_1 = V_2 P_2$$

$$V_2 = \frac{V_1 P_1}{P_2}$$

$$V_2 = \frac{4 \text{ L} \times 116 \text{ kPa}}{222 \text{ kPa}} = 2 \text{ L}$$

Answer: 2 L

3) If a solid piece of naphthalene is heated and remains at 80°C until it is completely melted, you know that 80°C is the

- A. freezing point of naphthalene.
- B. melting point of naphthalene.
- C. boiling point of naphthalene.
- D. both a and b

Solution:

This freezing and melting point of naphthalene.

Answer: D. both a and b.