14.3 Section Review Ideal Gases

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

_____ **10.** The ideal gas law allows you to solve for the number of moles of a contained gas when pressure, volume, and temperature are known.

_____ **11.** The ratio $(P \times V)/(R \times T)$ is equal to 1 for real gases.

_____ **12.** The behavior of a gas is most likely to approach ideal behavior at a high pressure and a low temperature.

_____ **13.** For an ideal gas, pressure and volume are directly proportional to each other when all other factors remain constant.

_____ **14.** The number of moles of gas is directly proportional to the number of particles.

Part C Matching

Match each description in Column B to the correct term in Column A.

Column A	Column B
_____ **15.** ideal gas law	**a.** $8.31 \times \frac{\text{L•kPa}}{\text{K•mol}}$
_____ **16.** real gas	**b.** a gas that follows the gas laws at all conditions of pressure and temperature
_____ **17.** ideal gas	**c.** a gas that can be liquefied by applying pressure
_____ **18.** ideal gas constant (R)	**d.** $PV = nRT$

Part D Questions and Problems

Answer the following in the space provided.

19. Calculate the number of moles of oxygen in a 12.5-L tank if the pressure is 25,325 kPa and the temperature is 22°C.

20. Calculate the mass of nitrogen dioxide present in a 275-mL container if the pressure is 240.0 kPa and the temperature is 28°C.