Gases

Practice Problems A

1. 177 kPa, 1330 mm Hg
2. 7.37×10^6 Pa

Practice Problems B

1. 760.0 torr

Practice Problems C

1. 1000 mL He

Practice Problems D

1. 941 mL
2. 91°C

Practice Problems E

1. 1.30 atm
2. 1.29 atm
3. 219°C

Practice Problems F

1. 26.3 mL
2. 3.94×10^5 Pa; or 394 kPa

Practice Problems G

1. 159 L N_2
2. 0.629 mol H_2

Practice Problems H

1. 9.10 L H_2
2. 0.313 L O_2
3. 236 L NO

Practice Problems I

1. 2.01 atm
2. 3.98 atm

Practice Problems J

1. CO_2 will effuse about 0.9 times as fast as HCl
2. 160 g/mol
3. about 235 m/s

Math Tutor Practice

1. $T_2 = \dfrac{P_2 T_1}{P_1}$
2. 694 mL

Solutions

Practice Problems A–C

1. 0.282 M KI
2. 0.0750 mol
3. 0.834 L

Practice Problems D

1. 22.0 *m* acetone
2. 3.13 g CH_3OH

Practice Problems J

1. **a.** $NH_4Cl(s) \xrightarrow{H_2O} NH_4^+(aq) + Cl^-(aq)$; 1 mol MH_4^+, 1 mol Cl^-, 2 mol ions
   b. $Na_2S(s) \xrightarrow{H_2O} 2Na^+(aq) + S^{2-}(aq)$; 2 mol Na^+, 1 mol S^{2-}, 3 mol ions
   c. $Ba(NO_3)_2(s) \xrightarrow{H_2O} Ba^+(aq) + 2NO_3^-(aq)$; 0.5 mol Ba^{2+}, 1 mol NO_3^-, 1.5 mol ions

Practice Problems B

1. Yes; $Ba^{2+}(aq) + SO_4^{2-}(aq) \longrightarrow BaSO_4(s)$
2. No
3. Yes; Na^+ and Cl^-; $Ba^{2+}(aq) + SO_4^{2-}(aq) \longrightarrow BaSO_4(s)$
4. $Ni_2(aq) + S^{2-}(aq) \longrightarrow NiS(s)$

Practice Problems C and D

1. –0.426°C
2. 0.175 *m*
3. –118.1°C
4. **a.** –9.0°C
   b. 4.8 *m*

Practice Problems E

1. 0.15°C
2. 102.7°C
3. 2.0 *m*
4. **a.** 0.75°C
   b. 1.5 *m*

Practice Problems F

1. –7.4°C
2. 2.6°C
3. 0.054 *m* NaCl

Math Tutor Practice

1. –4.77°C
2. 106.3°C

Ions in Aqueous Solutions and Colligative Properties

Practice Problems A