

Answers to Problem-Solving Questions  
in “*Structures for Success in Chemistry*”

1-6 p123-125

- #1 20.9 L
- #2 30.1 g
- #3 7.29 L
- #4 46.4 L
- #5 278 g
- #6 7.21 g

1-8 p127-129

- #1 1.1 L
- #2 1.4 atm
- #3 6.0 L
- #4 6760 K
- #5 18 atm
- #6 -171°C
- #7 1.65 L
- #8 18.1 atm

1-6 p 154-156

- #1  $5.645 \times 10^1$ ,  $3.21 \times 10^{-4}$ ,  $4.39221 \times 10^3$ ,  
 $1.2021 \times 10^{-4}$ ,  $6.5117921 \times 10^5$ ,  $2 \times 10^{-13}$ ,  $6.200 \times 10^{-5}$
- #2 4, 3, 4, 3, 6, 1, 4
- #3 5, 4, 4, 4, 1
- #4 1.60, yes (excepting one clearly incorrect), 1%
- #5 34.4, 5, 0.217,  $1.2 \times 10^2$
- #6 119.5 u

1-8 p157-158

- #1 11.9 mol
- #2 4.06 mol
- #3 100 mol
- #4 18.8 g
- #5 387 g
- #6  $1.8 \times 10^{24}$  atoms
- #7  $6 \times 10^{23}$  atoms
- #8 900 g

1-6 p160-162

- #1 587 g
- #2 38.6 g
- #3 46 g
- #4  $1.1 \times 10^{24}$  molecules
- #5 2920 g

#6  $1.5 \times 10^{25}$  molecules

1-6 p188-190

- #1 0.084 M
- #2 25 mL
- #3 0.10 M
- #4 1.2 M
- #5 1.17 M
- #6 0.67 M

1-10 p192-196 (net ionic equations)

- #1  $2 \text{Al}_{(s)} + 6 \text{H}^+_{(aq)} \rightarrow 3 \text{H}_{2(g)} + 2 \text{Al}^{3+}_{(aq)}$
- #2  $\text{H}^+_{(aq)} + \text{OH}^-_{(aq)} \rightarrow \text{H}_2\text{O}_{(l)}$
- #3  $2 \text{Cr}_{(s)} + 6 \text{H}^+_{(aq)} \rightarrow 3 \text{H}_{2(g)} + 2 \text{Cr}^{3+}_{(aq)}$
- #4  $\text{Ag}^+_{(aq)} + \text{Cl}^-_{(aq)} \rightarrow \text{AgCl}_{(s)}$
- #5  $2 \text{Br}^-_{(aq)} + \text{Cl}_{2(g)} \rightarrow 2 \text{Cl}^-_{(aq)} + \text{Br}_{2(l)}$
- #6  $\text{Cu}_{(s)} + 2 \text{Ag}^+_{(aq)} \rightarrow 2 \text{Ag}_{(s)} + \text{Cu}^{2+}_{(aq)}$
- #7  $2 \text{Fe}^{3+}_{(aq)} + \text{Sn}^{2+}_{(aq)} \rightarrow 2 \text{Fe}^{2+}_{(aq)} + \text{Sn}^{4+}_{(aq)}$
- #8  $\text{Cu}_{(s)} + 4 \text{H}^+_{(aq)} + \text{SO}_4^{2-}_{(aq)} \rightarrow \text{Cu}^{2+}_{(aq)} + \text{SO}_{2(g)} + 2 \text{H}_2\text{O}_{(l)}$
- #9  $2 \text{Mn}^{2+}_{(aq)} + \text{Cl}_{2(g)} \rightarrow 2 \text{Mn}^{3+} + 2 \text{Cl}^-_{(aq)}$
- #10  $\text{CO}_3^{2-}_{(aq)} + 2 \text{H}^+_{(aq)} \rightarrow \text{CO}_{2(g)} + \text{H}_2\text{O}_{(l)}$

1-8 p197-198

- #1 0.4 M
- #2 2.0 M
- #3 0.8 M
- #4 3.2 M
- #5 0.045 mol
- #6 1.0 mol
- #7 48 mL
- #8 1.70 M

1-8 p199-200

- #1 0.44 L
- #2 4.17 M
- #3 0.167 M
- #4 14.5 mL
- #5 0.0075 M
- #6 5.75 L
- #7 2.17 M
- #8 2.75 L