79. $[KOH]_{DIL}\,(\#1) = 0.15\,M \times \frac{55\,mL}{130\,mL} = 0.063\,M$

$[KOH]_{DIL}\,(\#2) = 0.25\,M \times \frac{75\,mL}{130\,mL} = 0.14\,M$

$[KOH]\,(total) = 0.063 + 0.14 =$ **0.21 M** KOH

80. $[NaBr] = 0.20\,M \times \frac{0.050\,mL}{100.05\,mL} =$ **1.0×10^{-4} M** NaBr

81. $[HNO_3]_{DIL}\,(\#1) = 3.5\,M \times \frac{5.0\,mL}{100\,mL} = 0.18\,M$

$[HNO_3]_{DIL}\,(\#2) = 0.20\,M \times \frac{95\,mL}{100\,mL} = 0.19\,M$

$[HNO_3]\,(total) = 0.18 + 0.19 =$ **0.37 M** HNO_3

82. $V_{CONC} = \frac{c_{DIL} \times V_{DIL}}{c_{CONC}} = \frac{0.375\,M \times 2.50\,L}{15.4\,M} = 0.0609\,L$

Dilute 0.0609 L of concentrated HNO_3 to a total volume of 2.50 L.

83. $V_{CONC} = \frac{c_{DIL} \times V_{DIL}}{c_{CONC}} = \frac{0.0600\,M \times 45.0\,L}{14.6\,M} = 0.185\,L$

Dilute 0.185 L of concentrated H_3PO_4 to a total volume of 45.0 L.

84. $[KCl] = \frac{\text{total moles}}{\text{total volume}}$, total mass KCl = 25.0 + 60.0 = 85.0 g

$[KCl] = \frac{85.0\,g}{0.5500\,L} \times \frac{1\,mol}{74.6\,g} =$ **2.07 M** KCl

85. $[NaCl] = 0.750\,M \times \frac{500.0\,mL}{300.0\,mL} =$ **1.25 M** NaCl

86. $V_{CONC} = \frac{c_{DIL} \times V_{DIL}}{c_{CONC}} = \frac{0.350\,M \times 0.2500\,L}{6.00\,M} = 0.0146\,L = 14.6\,mL$

Dilute 14.6 mL of concentrated HCl to a total volume of 250.0 mL.

87. mol

87. moles NaCl needed $= 0.400 \frac{\text{mol}}{\text{L}} \times 0.5000\ \text{L} = 0.200\ \text{mol}$

$$\text{mass NaCl} = 0.200\ \text{mol} \times \frac{58.5\ \text{g}}{1\ \text{mol}} = \boxed{\textbf{11.7 g NaCl}}$$

88. $[\text{NaOH}]_{\text{DIL}}\ (\#1) = 0.250\ \text{M} \times \frac{125.0\ \text{mL}}{325.0\ \text{mL}} = 0.0962\ \text{M}$

$[\text{NaOH}]_{\text{DIL}}\ (\#2) = 0.175\ \text{M} \times \frac{200.0\ \text{mL}}{325.0\ \text{mL}} = 0.108\ \text{M}$

$[\text{NaOH}]\ (\text{total}) = 0.0962 + 0.108 = \boxed{\textbf{0.204 M NaOH}}$

89. $V_{\text{CONC}} = \frac{c_{\text{DIL}} \times V_{\text{DIL}}}{c_{\text{CONC}}} = \frac{0.750\ \text{M} \times 3.00\ \text{L}}{12.0\ \text{M}} = \textbf{0.188 L}$

90. $[\text{CaCl}_2] = 0.550\ \text{M} \times \frac{80.0\ \text{mL}}{135.0\ \text{mL}} = \boxed{0.326\ \text{M CaCl}_2}$

91. $[\text{MgCl}_2] = 0.250\ \text{M} \times \frac{350.0\ \text{mL}}{275.0\ \text{mL}} = \boxed{0.318\ \text{M MgCl}_2}$

92. $[\text{NaCl}]_{\text{DIL}}\ (\#1) = 0.350\ \text{M} \times \frac{20.0\ \text{mL}}{60.0\ \text{mL}} = 0.117\ \text{M}$

$[\text{NaCl}]_{\text{DIL}}\ (\#2) = 0.875\ \text{M} \times \frac{75.0\ \text{mL}}{60.0\ \text{mL}} = 1.09\ \text{M}$

$[\text{NaCl}]\ (\text{total}) = 0.117\ \text{M} + 1.09\ \text{M} = \boxed{\textbf{1.21 M NaCl}}$

93. $[\text{NaCl}] = 0.400\ \text{M} \times \frac{150.0\ \text{mL}}{250.0\ \text{mL}} = \boxed{0.240\ \text{M NaCl}}$

94. $[\text{Na}_3\text{PO}_4] = 0.200\ \text{M} \times \frac{75.0\ \text{mL}}{100.0\ \text{mL}} = \boxed{0.150\ \text{M Na}_3\text{PO}_4}$