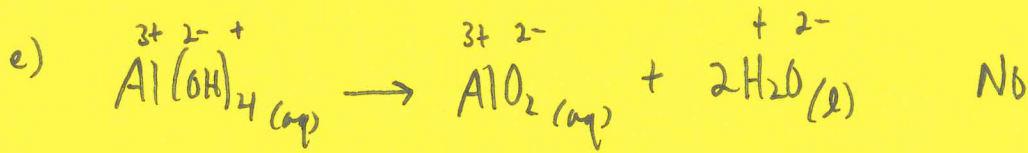
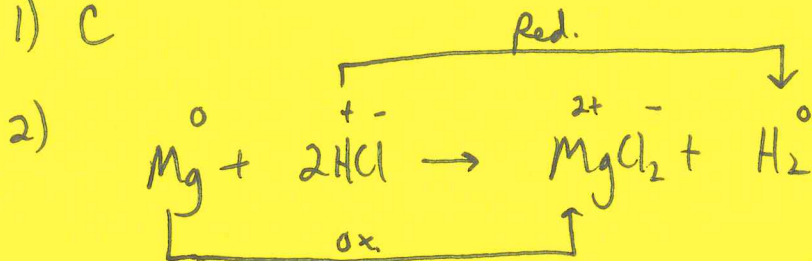


83) (cont)

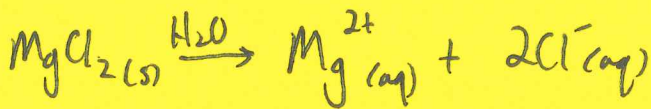
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1) C

C

3) $M_1 V_1 = M_2 V_2$

$$M_2 = \frac{M_1 V_1}{V_2} = \frac{(0.60\text{M})(0.200\text{L})}{(0.600\text{L})} = 0.20\text{M}$$

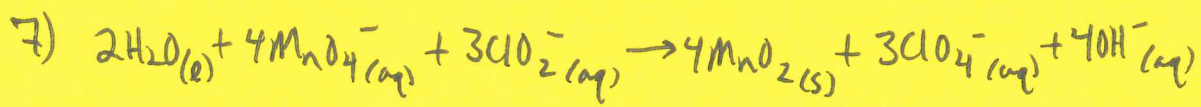
0.20M0.40M

4) $M_1 V_1 = M_2 V_2$

$$V_2 = \frac{M_1 V_1}{M_2} = \frac{(12.0\text{M})(0.0200\text{L})}{(0.500\text{M})} = 0.48\text{L} \rightarrow \boxed{480.\text{mL}}$$

5) A

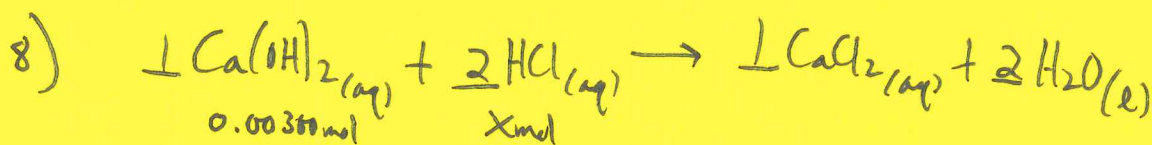
6) A



$$M = \frac{n}{L}$$

$$n = M \cdot L = (0.20 \frac{\text{mol}}{\text{L}})(0.020\text{L}) = 0.0040 \text{ mol}$$

$$\frac{0.0040 \text{ mol } \cancel{\text{MnO}_4^-}}{4 \cancel{\text{ mol } \text{MnO}_4^-}} \times \frac{3 \text{ mol } \text{ClO}_2^-}{1 \text{ mol } \text{MnO}_4^-} = \frac{0.0030 \text{ mol}}{0.015\text{L}} = \boxed{0.20 \text{ M}}$$



$$M = \frac{n}{L}$$

$$n = M \cdot L = (0.120 \frac{\text{mol}}{\text{L}})(0.0250\text{L}) = 0.00300 \text{ mol}$$

$$\frac{0.00300 \text{ mol } \cancel{\text{Ca(OH)}_2}}{1 \cancel{\text{ mol } \text{Ca(OH)}_2}} \times \frac{2 \text{ mol } \text{HCl}}{1 \text{ mol } \text{Ca(OH)}_2} = \frac{0.00600 \text{ mol}}{0.0150\text{L}}$$

$$M = \frac{n}{L}$$

$$L = \frac{n}{m} = \frac{(0.00600 \text{ mol})}{(0.150 \frac{\text{mol}}{\text{L}})} = 0.0400\text{L}$$

$$\boxed{40.0 \text{ mL}}$$