

408 Molarity

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2/9/16

14/14

$$1. 16 \text{ g MgCl}_2 \frac{1 \text{ mol}}{95.1 \text{ g}} = 0.168 \text{ mol}$$

$$M = \frac{0.168 \text{ mol}}{0.3 \text{ L}} = \boxed{0.56 \text{ M}}$$

$$2. 0.360 \text{ M} = \frac{\text{moles}}{0.45 \text{ L}} = 0.162 \text{ mol} \frac{40 \text{ g}}{1 \text{ mol}} = \boxed{6.48 \text{ g NaOH}}$$



$$3 \text{ M} = \frac{\text{moles}}{0.35 \text{ L}} = 1.05 \text{ mol HCl} \frac{1 \text{ mol}}{2 \text{ mol}} \frac{106 \text{ g}}{1 \text{ mol}} = \boxed{55.6 \text{ g Na}_2\text{CO}_3}$$

$$4. 16 \text{ g CaCl}_2 \frac{1 \text{ mol}}{110.8 \text{ g}} = 0.14 \text{ mol}$$

$$M = \frac{0.14 \text{ mol}}{0.25 \text{ L}} = \boxed{0.56 \text{ M}}$$

$$5. 0.360 \text{ M} = \frac{\text{moles}}{0.25 \text{ L}} = 0.09 \text{ mol} \frac{180 \text{ g}}{1 \text{ mol}} = \boxed{16.2 \text{ g C}_6\text{H}_{12}\text{O}_6}$$

$$6. 18 \text{ M} = \frac{\text{moles}}{0.025 \text{ L}} = 0.45 \text{ mol H}_2\text{SO}_4$$

$$1.5 \text{ M} = \frac{0.45 \text{ mol}}{\text{L}} = 0.3 \text{ L} = \boxed{300 \text{ mL}}$$

$$7. 0.1024 \text{ M} = \frac{\text{moles}}{0.02604 \text{ L}} = 0.0027 \text{ mol NaOH} \frac{1 \text{ mol}}{2 \text{ mol}} = 0.00135$$

$$M = \frac{0.00135 \text{ mol}}{0.01288 \text{ L}} = \boxed{0.105 \text{ M}}$$



$$0.5 \text{ M} = \frac{\text{moles}}{0.030 \text{ L}} = 0.015 \text{ mol H}_2\text{SO}_4 \frac{1 \text{ mol}}{1 \text{ mol}} = 0.015 \text{ mol Mg(OH)}_2 \frac{1 \text{ mol Mg}}{1 \text{ mol}} = 0.015 \text{ mol Mg}$$

$$M = \frac{0.015 \text{ mol}}{0.030 \text{ L}} = \boxed{0.5 \text{ M Mg}}$$

$$0.015 \text{ mol Mg(OH)}_2 \frac{58.3 \text{ g}}{1 \text{ mol}} = 0.874 \text{ g Mg(OH)}_2$$

$$3.50 \text{ g} - 0.874 \text{ g} = \boxed{2.63 \text{ g remain}}$$