



35.45

40.08
76.90
110.98

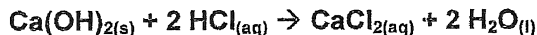
40.08
32.00
2.02

74.10 g/mol

Honors - use .01 rounding
on PT's

Stoichiometry Using Molarity Worksheet

For the questions on this worksheet, consider the following equation:



- 1) What type of chemical reaction is taking place? DR - AB
- 2) How many liters of 0.100 M HCl would be required to react completely with 5.00 grams of calcium hydroxide?

$$\frac{5.00 \text{ g Ca(OH)}_2}{74.10 \text{ g/mol}} \times \frac{1 \text{ mol Ca(OH)}_2}{1} \times \frac{2 \text{ mol HCl}}{1 \text{ mol Ca(OH)}_2} \times \frac{1 \text{ L}}{0.100 \text{ mol}} = 1.35 \text{ L}$$

1.35 L
HCl

- 3) If I combined 15.0 grams of calcium hydroxide with 75.0 mL of 0.500 M HCl, how many grams of calcium chloride would be formed?

$$\frac{15.0 \text{ g Ca(OH)}_2}{74.10 \text{ g/mol}} \times \frac{1 \text{ mol Ca(OH)}_2}{1} \times \frac{1 \text{ mol CaCl}_2}{1 \text{ mol Ca(OH)}_2} \times \frac{110.98 \text{ g}}{1 \text{ mol}} = 22.5 \text{ g CaCl}_2$$

$$\frac{0.075 \text{ L HCl}}{1} \times \frac{0.500 \text{ mol}}{1 \text{ L}} \times \frac{1 \text{ mol CaCl}_2}{2 \text{ mol HCl}} \times \frac{110.98 \text{ g}}{1 \text{ mol}} = 12.08 \text{ g CaCl}_2$$

- 4) What is the limiting reagent from the reaction in problem #3? HCl
- 5) How many grams of the excess reagent will be left over after the reaction in problem 3 is complete?

$$\frac{0.075 \text{ L HCl}}{1} \times \frac{0.500 \text{ mol}}{1 \text{ L}} \times \frac{1 \text{ mol Ca(OH)}_2}{2 \text{ mol HCl}} \times \frac{74.10 \text{ g}}{1 \text{ mol}} = 1.39 \text{ g Ca(OH)}_2$$

Ca(OH)₂ 15.0 start
Ca(OH)₂ - 1.39 used

13.6 g Ca(OH)₂
excess!