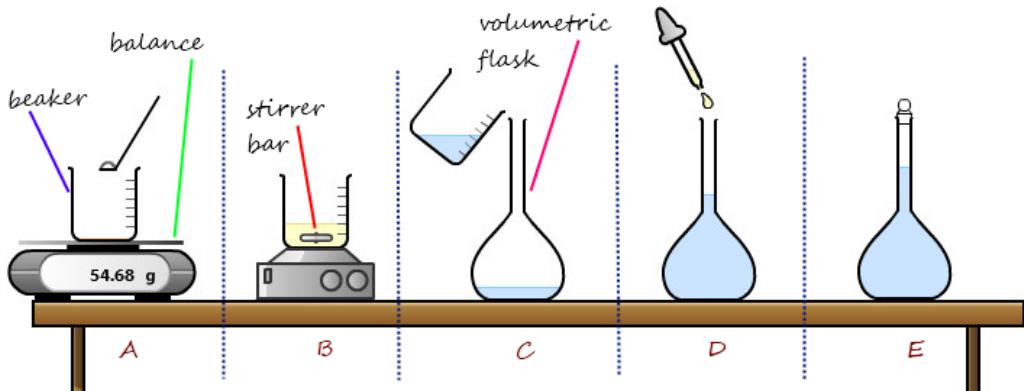


SCH 3U

PREPARING A SOLUTION (& DILUTIONS)

① PREPARING STOCK SOLUTIONS



STEPS

A:

B:

C:

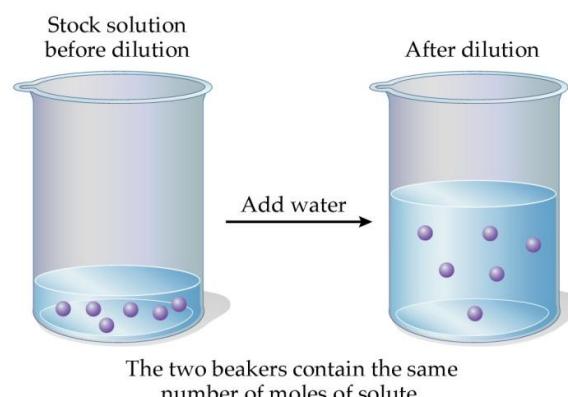
D:

E:

② DILUTING SOLUTIONS

$$(c_{initial})(V_{initial}) = (c_{final})(V_{final})$$

$$c_1 V_1 = c_2 V_2$$



$$n_1 = 6 \text{ mol}$$

$$V_1 = 2 \text{ L}$$

$$c_1 = \frac{n}{V} = 3.0 \text{ M}$$

$$n_2 = 6 \text{ mol}$$

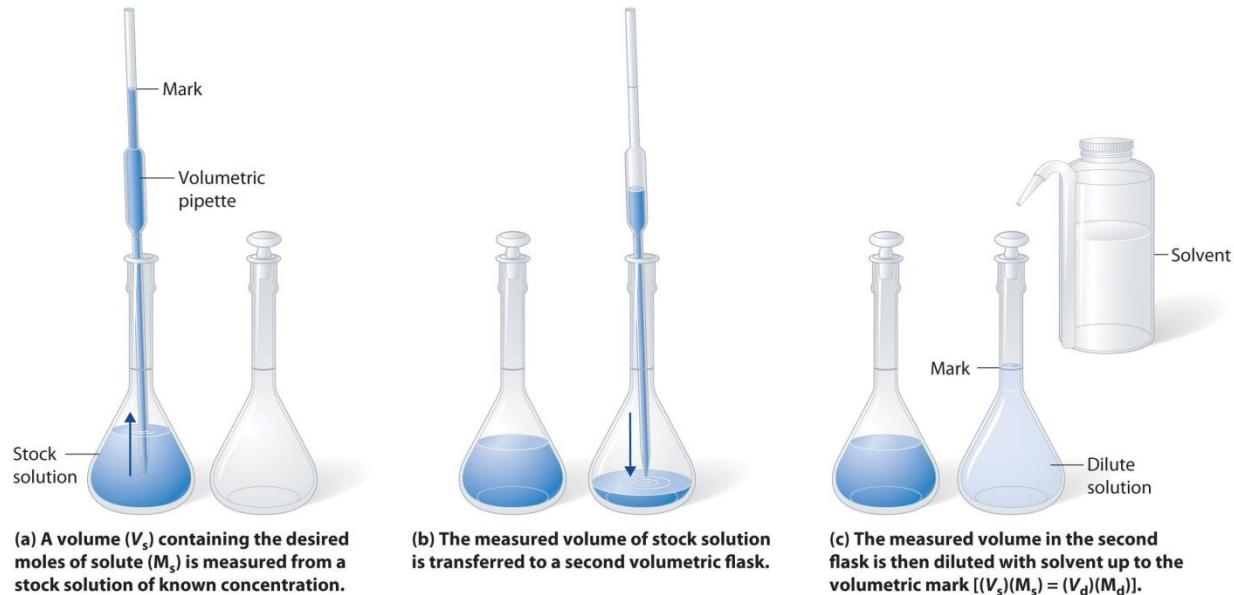
$$V_2 = 10 \text{ L}$$

$$c_2 = 0.6 \text{ M}$$

$$\text{Since } n_1 = n_2$$

$$c_1 V_1 = c_2 V_2$$

③ HOW TO DILUTE A SOLUTION



EXAMPLES:

- ① You are given a concentrated solution of 18.0 mol/L sulfuric acid. If you want to make up 2.0 L of a 0.10 mol/L solution, what volume of conc. acid is needed in mL? What volume of water was used to dilute the solution?
- ② If 25.0 mL of a 0.750 mol/L solution of $\text{K}_2\text{CO}_3\text{(aq)}$ solution is diluted to 2.00 L, what concentration of solution is obtained?

③ What volume of 12.0 M HCl solution and volume of distilled water are needed to make a dilute solution with a concentration of 5% (m/V)?

④ A) A 500 mL volumetric flask is used to create a 1.50 M stock solution of potassium chlorate. Describe the steps of preparing the solution.

B) To perform a lab, you need 200 mL of a 6% (m/V) potassium chlorate solution. What volume of the stock solution in part A will be withdrawn and what volume of distilled water will be used to make up the 200 mL solution.