

1. How many _____?
2. Calculate the molarity of the following solutions:
 - a. 1.0g of NaCl dissolved in water to make 100 mL of solution

$$\frac{1.0g}{58.44g/mol} \times \frac{1000 mL}{1 L} = .0171 mol/L$$

$$M = \frac{0.0171 mol}{1.0 L} = \boxed{.0171 M}$$
 - b. 2.0g of NaCl dissolved in water to make 100 mL of solution

$$\frac{2.0g}{58.44g/mol} \times \frac{1000 mL}{1 L} = .0342 mol/L$$

$$M = \frac{0.0342 mol}{1.0 L} = \boxed{.0342 M}$$
3. How many moles of NaCl are in 100 mL of a 0.1M solution?

$$0.1 M = \frac{mol}{1 L} \quad mol = \boxed{.01 mol NaCl}$$
4. How many moles of NaCl are in 100 mL of a 0.2M solution?

$$.2 M = \frac{mol}{1 L} \quad mol = \boxed{.02 mol NaCl}$$
5. A reaction calls for the use of 1.00 mol of NaOH. You have a bottle of 1.00 M NaOH. How many milliliters of the solution should you use?

$$.1 M = \frac{1.00 mol}{L} \quad L = 1.00 L \quad = \boxed{1000 mL}$$
6. A reaction calls for the use of 1.00 mol of NaOH. You have a bottle of 0.50 M NaOH. How many mL should you use?

$$.5 M = \frac{1.00 mol}{L} \quad L = 2.00 L \quad = \boxed{2000 mL}$$
7. How many moles of NaOH are in 100 mL of a 0.100 M solution? How many grams?

$$.1 M = \frac{mol}{1 L} \quad mol = \frac{0.01 mol NaOH}{1 L} \times 40.00g/mol = 0.40g$$
8. A reaction calls for the use of 1.00 mol of NaOH. You have a bottle of 0.50 M NaOH. How many grams of NaOH should you use?

$$.5 M = \frac{mol}{L} \quad \frac{1.00 mol NaOH}{1 L} \times \frac{40.00g}{1 mol} = \boxed{40.0g NaOH}$$