

Mole IV Check Point

✓ Molar Concentration

Name:

Date:

Block:

Key.

1. How many mol are in 0.72 L of 2.5 M NaOH?

↳ 2.5 mol/L

$$0.72 \text{ L} \times \frac{2.5 \text{ mol}}{\text{L}} = 1.8 \text{ mol NaOH}$$

2. What would be the resulting molar concentration if 1.0 g KCl was dissolved in 2.0 L of water?

molar mass = 74.55 g/mol

$$\frac{1.0 \text{ g}}{2.0 \text{ L}} \times \frac{1 \text{ mol}}{74.55 \text{ g}} = 0.0067 \text{ M KCl}$$

0.0067 $\frac{\text{mol}}{\text{L}}$ KCl

3. What mass of KCl would be recovered if 55 mL of 0.20 M KCl were "evaporated to dryness"?

$$55 \text{ mL} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times \frac{0.20 \text{ mol}}{1 \text{ L}} \times \frac{74.55 \text{ g}}{1 \text{ mol}} = 0.82 \text{ g KCl}$$

4. What mass of sodium hydroxide would you need to prepare 2.0 L with a concentration of 0.010 M?

NaOH

$$2.0 \text{ L} \times \frac{0.010 \text{ mol}}{\text{L}} \times \frac{40.00 \text{ g}}{1 \text{ mol}} = 0.80 \text{ g of NaOH}$$