Task:
What mass of copper (II) nitrate is required to prepare a 0.500 L of a 0.750 mol/L solution?

Answer:

$$C_M = \frac{\nu}{V} \qquad\qquad \nu = \frac{m}{M}$$

$$\nu(CuNO_3) = C_M(CuNO_3) \cdot V(CuNO_3)$$

$$m(CuNO_3) = \nu(CuNO_3) \cdot M(CuNO_3)$$

$$M(CuNO_3) = 125.5 \; g/mol$$

$$\nu(CuNO_3) = 0,750 \cdot 0,5 = 0,375 \, mol$$

$$m(CuNO_3) = 0,375 \cdot 125,5 = 47,06 \, g$$