How would you prepare a total volume of 500 mL NaCl solution with a concentration of 8.4 g_{NaCl} / 30 mL.

Prepare 342 mL of a 9.1 g_{NaCl} / 20 mL solution.

Prepare 9 L of a 9.2 g_{NaCl} / 90 mL solution.

Prepare a 12.2 g_{NaCl} / 40 mL solution given 32 g_{NaCl}.

Prepare a 0.12 g_{NaCl} / mL solution given 1.2 kg_{NaCl}.

Prepare a 12 g_{MgSO_4} / 0.3 L solution given 1.2 kg_{MgSO_4}.

How would you prepare a total volume of 500 mL NaCl solution with a concentration of 8.4 g_{NaCl} / 30 mL.

$$C = \frac{m_{NaCl}}{V_{total}}$$

$$8.4\ \frac{g_{NaCl}}{30\ mL} = \frac{m}{500\ mL}$$

$$\frac{8.4\ g}{30\ mL} = \frac{m}{500\ mL}$$

$$m = \frac{(8.4\ g)(500\ \cancel{mL})}{30\ \cancel{mL}}$$

$$m = 140\ g$$

$$\boxed{m_{NaCl} = 100\ g}$$

Prepare 342 mL of a 9.1 g_{NaCl} / 20 mL solution.

$$C = \frac{m_{NaCl}}{\forall_{total}}$$

$$9.1 \frac{g_{NaCl}}{20 mL} = \frac{m}{342 mL}$$

$$\frac{9.1 g}{20 mL} = \frac{m}{342 mL}$$

$$m = \frac{(9.1 g)(342 \cancel{mL})}{20 \cancel{mL}}$$

$$m = 155.61 g$$

$$\boxed{m_{NaCl} = 200 g}$$

Prepare 9 L of a 9.2 g_{NaCl} / 90 mL solution.

$$C = \frac{m_{NaCl}}{\forall_{total}}$$

$$9.2\ \frac{g_{NaCl}}{90\ mL} = \frac{m}{9\ L}$$

$$\frac{9.2\ g}{90\ mL} = \frac{m}{9\ L}$$

$$m = \frac{(9.2g)(9\ \cancel{L})}{90\ \cancel{mL}} \left(\frac{1000\ \cancel{mL}}{1\ \cancel{L}}\right)$$

$$m = 920\ g$$

$$\boxed{m_{NaCl} = 900\ g}$$

Prepare a 12.2 g_{NaCl} / 40 mL solution given 32 g_{NaCl}.

$$C = \frac{m_{NaCl}}{\forall_{total}}$$

$$12.2 \frac{g_{NaCl}}{40\,mL} = \frac{32\,g}{\forall}$$

$$\frac{12.2\,g}{40\,mL} = \frac{32\,g}{\forall}$$

$$\forall = \frac{(40\,mL)(32\,\cancel{g})}{12.2\,\cancel{g}}$$

$$\forall = 104.918\ mL$$

$$\boxed{\forall_{total} = 100\ mL}$$

Prepare a 0.12 g_{NaCl} / mL solution given 1.2 kg_{NaCl}.

$$C = \frac{m_{NaCl}}{\forall_{total}}$$

$$0.12 \frac{g_{NaCl}}{mL} = \frac{1.2\ kg}{\forall}$$

$$\frac{0.12\ g}{1\ mL} = \frac{1.2\ Kg}{\forall}$$

$$\forall = \frac{(1\ mL)(1.2\ \cancel{Kg})}{0.12\ \cancel{g}} \left(\frac{1000\ \cancel{g}}{1\ \cancel{Kg}}\right)$$

$$\forall = 10000\ \cancel{mL} \left(\frac{1\ L}{1000\ \cancel{mL}}\right)$$

$$\boxed{\forall_{total} = 10\ L}$$

Prepare a 12 g_{MgSO_4} / 0.3 L solution given 1.2 kg_{MgSO_4}.

$$C = \frac{m_{MgSO_4}}{V_{total}}$$

$$12 \frac{g_{MgSO_4}}{0.3L} = \frac{1.2\ kg}{V}$$

$$\frac{12\ g}{0.3\ L} = \frac{1.2\ kg}{V}$$

$$V = \frac{(0.3\ L)(1.2\ \cancel{kg})}{12\ \cancel{g}} \left(\frac{1000\ \cancel{g}}{1\ \cancel{kg}}\right)$$

$$V = 30\ L$$

$$\boxed{V_{total} = 30\ L}$$