You dilute 40 mL of a 2.0 M NaCl solution to 200 mL. What is the new concentration?

If 75 mL of a 3.0 M solution is diluted to 150 mL, what is the final molarity?

10 mL of a 5.0 M solution is diluted to 250 mL. What is the resulting concentration?

A 100 mL sample of 1.0 M glucose is diluted to 300 mL. What is the final molarity?

You take 25 mL of a 4.0 M $CaCl_2$ stock and dilute it to 125 mL. What is the new concentration?

500 mL of a 1.5 M HCl solution is diluted to 1.5 L. What is the new concentration?

You dilute 40 mL of a 2.0 M NaCl solution to 200 mL. What is the new concentration?

$$C_1 V_1 = C_2 V_2$$

$$[2.0\,M][40\,mL] = C_2[200\,mL]$$

$$C_2 = \frac{(2.0\,M)(40\,\cancel{mL})}{200\,\cancel{mL}}$$

$$C_2 = 0.4\,M$$

$$\boxed{C_2 = 0.4\,M}$$

If 75 mL of a 3.0 M solution is diluted to 150 mL, what is the final molarity?

$$C_1 V_1 = C_2 V_2$$

$$[3.0\,M][75\,mL] = C_2[150\,mL]$$

$$C_2 = \frac{(3.0\,M)(75\,\cancel{mL})}{150\,\cancel{mL}}$$

$$C_2 = 1.5\,M$$

$$\boxed{C_2 = 1.5M}$$

10 mL of a 5.0 M solution is diluted to 250 mL. What is the resulting concentration?

$$C_1 V_1 = C_2 V_2$$

$$[5.0\ M][10\ mL] = C_2 [250\ mL]$$

$$C_2 = \frac{(5.0\ M)(10\ \cancel{mL})}{250\ \cancel{mL}}$$

$$C_2 = 0.2\ M$$

$$\boxed{C_2 = 0.2\ M}$$

A 100 mL sample of 1.0 M glucose is diluted to 300 mL. What is the final molarity?

$$C_1 V_1 = C_2 V_2$$

$$[1.0\,M][100\,mL] = C_2[300\,mL]$$

$$C_2 = \frac{(1.0\,M)(100\,\cancel{mL})}{300\,\cancel{mL}}$$

$$C_2 = 0.33\overline{3}\ M$$

$$\boxed{C_2 = 0.3\ M}$$

You take 25 mL of a 4.0 M $CaCl_2$ stock and dilute it to 125 mL. What is the new concentration?

$$C_1V_1 = C_2V_2$$

$$[4.0\,M][25\,mL] = C_2[125\,mL]$$

$$C_2 = \frac{(4.0\,M)(25\,\cancel{mL})}{125\,\cancel{mL}}$$

$$C_2 = 0.8\,M$$

$$\boxed{C_2 = 0.80\,M}$$

500 mL of a 1.5 M HCl solution is diluted to 1.5 L. What is the new concentration?

$$C_1 V_1 = C_2 V_2$$

$$[1.5\,M][500\,mL] = C_2[1.5\,L]$$

$$C_2 = \frac{(1.5\,M)(500\,\cancel{mL})}{1.5\,\cancel{L}} \left(\frac{1\,\cancel{L}}{1000\,\cancel{mL}}\right)$$

$$C_2 = 0.5\,M$$

$$\boxed{C_2 = 0.5\,M}$$