Molarity

Conventions:

M=Molarity=moles/L
n=moles
m=mass

I. Molarity and Solution Concentration: Molarity is given the symbol M and represents the moles of solute dissolved in one liter of solution (mole/L).

(In Class)

I.a) What is the molarity of Aluminum sulfate if 4.67g are diluted to 100.0 mL with water?

$$\frac{4.67 g Al_2(SO_4)_3}{0.1000 L}\left(\frac{mol Al_2(SO_4)_3}{342.17 g}\right) = 0.136 M$$

I.b): What is the molarity of Aluminum ion if 4.67g of aluminum sulfate are diluted to 100.0 mL with water?

$$\frac{4.67 g Al_2(SO_4)_3}{0.1000 L}\left(\frac{mol Al_2(SO_4)_3}{342.17 g}\right)\left(\frac{2 mol Al^{+3}}{mol Al_2(SO_4)_3}\right) = 0.273 M$$

I.c): What mass of aluminum sulfate would you need to dilute to 50.0 mL to make a solution which is 0.700M in aluminum sulfate?

$$\frac{0.700 mol Al_2(SO_4)_3}{L}\left(\frac{342.17 g Al_2(SO_4)_3}{mol}\right) 0.0500 L = 12.0 g Al_2(SO_4)_3$$