

>> If the pressure of a gas mixture is 825 torr and the partial pressure of one component of the mixture is 73 torr what is the partial pressure of the second component in atmosphere? Okay. Let's take a look at what we have here. Pressure of a gas mixture is 85 torr. That would be your total pressure. We're also told that the partial pressure of one component is 73 torr. So that would be the partial pressure of component 1. Now what is the partial pressure of the second component in atmosphere? Okay. So, this would be pressure 2. Pressure of component two. This is Dalton's law. Dalton's law says that the total pressure of a mixture of gases equals the sum of the partial pressures of each one of the components of gas. In this case we have a mixture of two gases so we just have the two partial pressures that add up to give us the total pressure. So, what we can do now is using this we can plug in these two numbers 825 represents our total pressure 73 represents pressure 1 and we don't know what pressure 2 is. Pressure 2 is our unknown. Okay. Now we want to isolate pressure 2 so that we can solve for it. So, to get rid of plus 73 we subtract 73 and we do that from both sides of the equation. So over on this side now we're simply left with pressure 2 equals 825 minus 73 which is 752 torr. So, we have our answer as to what is the partial pressure of the second component. However, if you look here they're asking for the partial pressure to be given in atmosphere and we haven't done that yet. So, we have to take now our torr measurement our torr 752 torr and we have to convert that to atmosphere. We know that one atmosphere equals 760 torr. And so, we can use that as our conversion factor. The torr units will cancel out leaving us with 752 divided by 760 equals .989 and then atmosphere is our units.