>> A gas at 25-degrees C occupies 3.6-liters. What volume would it occupy at 40-degrees C? Okay. Again, let's take a look at what we have. We have a temperature, we have a volume here. So, let's call this a temperature, let's call this a volume. Now if we continue to look we have a second volume. Okay, that means this has to be volume 1 and this 1 must be volume 2. And it says what would this be, so that's going to be our unknown. Well at here is a second temperature. Temperature 2. Let's go back and call this 1 temperature 1. Okay. So now we've been able to locate the pieces of information we have. Now what can we do with it? Well let's write it out. Temperature 1 is 25-degrees. Temperature 2 is 40-degrees. You'll notice was for each 1 of these I add 273 to our number. Because when you're working with gas laws we have to convert gas laws to units of Kelvin in order to work with the laws. Okay. So, 25-degrees C is actually 298 Kelvin. Temperature which is 40-degrees is 313 Kelvin. Now we also have column 1 which is 3.6-liters and volume 2 is our unknown. Okay this sounds like Charles law. Charles law relates volume with temperature. Charles law is volume 1 divided by temperature 1 equals volume 2 divided by temperature 2. Okay going back now we see that we're looking for volume 2. We have to isolate volume 2. Which means we have to get rid of this guy over here, put him over on the other side. How do you get rid of a division of temperature 2? Multiply by temperature 2. And so, you can see here we've rewritten the equation. We multiplied both sides by temperature 2. By doing that now we can cancel out temperature 2 over here and, on this side, now we have v1 times t2 over t1. So here is our new equation v2 equals v1 times t2 over t1. Again, now this is where it starts getting confusing. Because we're used to going okay v1, t1. No. It's not v1, t1. Its v1, v2. So, you have to be very careful when you start plugging the numbers in that you look at your subscripts and get the correct numbers put in. v1 we said was 3.6, v2, I mean t2 was 313 and t1 was 298. Okay. Now we can go ahead cancel out our Kelvin, do our multiplication and division. We end up with 3.8-liters. Now does that sound good? Well let's see going back to what we had here. In Charles law as volume goes up temperatures also going to go up. Okay. We saw that temperature went from 298 to 313, it did go up. Volume then 3.6 should go up and it did it went up to 3.8. So yeah, this looks like a good one.