>> 2.0 liters of gas at 23 degrees C exerts 0.95 atmospheres pressure. If the volume decreases to 1.5 liters, and the temperature rises to 28 degrees C, what will the pressure be? Okay. Now we're going to put in more than just two variables. We've got three variables we're talking about. The first one here is volume and it's the first situation so there's your volume one. Here's your temperature in the first situation, temperature one. And here's your pressure in the first situation, or pressure one. Now we're going to see a change. They said first off the volume decreases to 1.5 liters so there's volume two. Temperature rises to 28 degrees C. Here's temperature – oops – two. And the question is this one right here. What will the second pressure be? So we can go ahead and put these pieces of information down if we'd like. Here's our volume, temperature, and pressure in the first situation. You'll notice now I've already added the 273 to our temperature to give it units of Kelvin. Then situation number two, we have volume, temperature, and our unknown which is pressure two. Since we're using three variables, we have to use the combined gas law. Combined gas law says pressure one times volume one divided by temperature one equals pressure two times volume two divided by temperature two. In this situation now we're looking for pressure two which means we want to isolate pressure. We have to get rid of volume two. We have to get rid of temperature two. What I did down here then is I actually took pressure, volume, and temperature and I isolated them a little bit in this way to make volume over temperature as a fraction that's being multiplied by the pressure here. So doing that we can see that we want to get rid of V2 divided by T1. We can now multiply both sides of the equation by the reciprocal of this fraction. The reciprocal of V2 over T2 is T2 over V2. So you can see I've multiplied both sides by the T2 over V2. Temperatures now are canceling. Volumes are canceling. Leaves us with pressure two all by itself. So we have now our new equation, pressure two equals pressure one times volume one times temperature two divided by temperature one times volume two. Okay. Very tricky. Real important to be careful putting those numbers into the equation. Going back, getting those original numbers, we've set it up with all the different numbers represent each of the numbers that went with the corresponding variables. And we can go ahead and cancel out units. The liters will cancel out. The Kelvins will cancel out. We're left with atmosphere. And our answer then ends up being 1.3 atmosphere pressure. And with a situation like this where one of your variables goes up, another one goes down, it's a little bit more difficult to say if that answer makes sense. So at this point you just have to go back and check your work, make sure you put the right numbers in for the right variables, and then work it through your calculator again.