>> What volume of 3.0 molar KCl solution can be made using 58.9 grams of KCl? We have two pieces of information here, first being 3.0 molar, second being 58.9 grams. So I've written both down here. Now looking at them both, you can see this one is the one that has the two units, moles and liters, so this one is going to be our conversion factor. This will be our starting point. What are they asking for? They're asking for volume. Ok? So we have to figure out how are we going to start at grams and end up having volume? Well, this is where the conversion factor comes in because this conversion factor relates mass to volume. So looking at this, we can see that we can convert from moles to liters. Liters is what we want to end up at. But we don't really start at moles. So we have to ask ourselves now how do I get from grams to moles? Well, that's simple. That's our molar mass. So now we have a plan of attack. We can go ahead and start using our starting material, our 58.9 grams, and the molar mass of potassium chloride, which is the 74.55 grams per mole. I have the reciprocal of that molar mass so that I can go ahead and cancel out grams of KCl. When I divide, 58.9 divided by the 74.55, I end up with units of moles. I end up with .790 moles of potassium chloride. So now I have my mass. I can now bring in this right here, this conversion factor, which will take me from moles to liters. So I have .790 moles of KCl, and then I'm multiplying it by one liter over 3.0 moles of KCl. Again, we can cancel out moles of potassium chloride. We have now .790 divided by the three gives us .26 liters of solution. Going back and looking at our significant figures, we have three here but only two here, which means we have to limit our answer to two significant figures.