

>> Diane Jewell: Convert 1950 seconds to hours. How do we start with this? Well, first off, let's figure out what our units are. Our starting units is seconds because that's what goes with the number we're given. So we're starting at seconds. And they want us to convert to hours. So that's going to be our ending. So now we're going to just look at that, starting with seconds, going to hours. Do we know how many seconds are in an hour? Well, some people do but a lot of people don't. So we have to come up with what do we know. We know we can convert from seconds to minutes because everybody knows that there's 60 seconds in 1 minute. Okay? Now if we get to minutes, then we can convert from minutes to hours because we know that 60 minutes equals 1 hour. So you could use this convert from seconds to minutes and this to convert from minutes to hours and we end up starting at seconds then and ending with hours. So with 2 steps, we should be able to get our conversion finished. Okay, so this is our first equality. We have 2 choices of conversion factors. We can have the 60 seconds over 1 minute or 1 minutes over 60 seconds. So let's go ahead and do our first step and decide which of these conversion factors we want to use. We're starting with 1950 seconds. We want to get rid of seconds in the numerator. We know that whatever we have in the numerator can be canceled out of if we have the same thing in the denominator. And so if we use this one right here, where seconds is in the denominator, we have 1 minute over 60 seconds. Now look what we have. Seconds in the numerator, seconds in the denominator. They cancel each other out. So we have 1950 times 1 divided by 60. When we put that into our calculator, we get 32.5. What are our units? Well, the only unit we have left is minutes in the numerator. So that's our unit for the first step. So now we know that 1950 seconds equals 32.5 minutes. Now we want to convert from minutes to hours using this equality. Again, we can write up our 2 conversion factors of 60 minutes in 1 hour and 1 hour is 60 minutes. So let's go ahead and set it up right now. We're starting with this. So here it is, 32.5 minutes. We want to get rid of minutes, which means we have to have minutes in the denominator. So this will be the one we're going to use. Putting minutes in the denominator allows us to cancel out the minutes. Whatever we're ending with, whatever units we're ending with has to be up in the denominator, I'm sorry, in the numerator. And look what we have in the numerator, hours. That's exactly what we want it to end with. So now 32.5 times 1 divided by 60 gives us 0.542 units are hours. Now how do I know that that's the right number of significant figures? Well, let's go back and look at our first number we started with; 1950, there's no decimal point which means that zero is not significant; 1, 2, 3, significant figures. This is a leading zero, so it's not going to be significant; 1, 2, 3, that's what we want to have there, 0.542 hours.