

>> Diane Jewell: Now, here what you're looking at is addition. We don't really have any subtraction problems here, but addition and subtraction would be handled the same way when it comes to significant figures. So let's take a look at our first problem. We have 14 plus 27.99 plus 3. Now, the 14 actually goes to three decimal places, and the 3 goes into one decimal place. So what I would suggest you do is write it in column form and find the last significant figure for each one of those. Because these are trailing zeros, but there's a decimal point. This last zero is significant. So I changed that to make it a red color to remind myself there's my last significant figure, okay? 27.99, 9 is my last significant figure right here so I made that red. 3.0 that zero is significant because of the decimal point so I made that one red, okay? Then I went ahead and added them all up. I got 44.990. The question is to what point will I – at what point will I cut off the answer? Well, we want to look again for the weakest link. And the weakest link is the one that has the significant figure farthest to the left, okay? That one when you line it up like this and give them a color you can see the red one here is farthest to the left. This is in the tenths place, hundredths, thousandths. And so that means we're actually going to have our answer rounded to the same place as this one right here since this is the weakest one. So we rounded to 44.99. Now we'll round up because of the next 9 so it becomes 45.0. So now we're not counting numbers. We're not saying this is 5, this is 4 and this is 2. That's not how you do it with adding and subtracting. You say to yourself which one has its last significant figure farthest to the left. And this one is farthest to the left. Therefore, your answer can't be any more precise than this one here. And, therefore, you're going to round your number to that place. Okay, let's take a look at this one. We have 50 plus 600 plus 11,000. Again, I wrote down, 50, now 50 doesn't have a decimal point. So the 5 is the only significant number. So I put the 5 in red, and then 600 has a decimal point, so the very last zero is going to be significant so that one became red. And 11,000 doesn't have a decimal point, so only the 1 and 1 are significant. So the second one is the significant one. Again, look for the one that has the red number furthest to the left. That's going to be this one right here. This is a very, very weak number. Why is it weak? Well, when we say 11,000 without a decimal point we're saying that this falls someplace between 10,000 and 12,000. I don't know about you, but I like to be a little more precise in my numbers. So whereas this one says, oh, this is between 40 and 60, this one says it's between 599.9 and 600.1. So you see how this one actually goes all the way to the tenths place and gives you a fairly decent number. This number only goes as far as the thousandth place and then it says the rest of these are I don't know. It's someplace in there but they're not significant. So that means our answer can't be any better than this one, the weakest one. This one being in the thousandth place our answer has to rounded to the thousandths place. The next number is a 6 which means the 1 rounds up to 2. And then the rest of these are dropped and replaced with zeros to give us 12,000 for our answer.