

Chapter 12 - Written Methods for Multiplication and Division

Division by ad hoc subtraction 4 minutes and 54 seconds

Here are two division calculations which I'm going to do using ad hoc subtraction. In another video later on I do the same two questions using long division so you can compare the two methods, you can decide which makes more sense, which looks the easier to do. So starting with five thousand one hundred and eighty four divided by twenty-four, I answer that by asking the question-how many twenty-fours can I get from five thousand one hundred and eighty-four and I'm going to find the answer to that by repeatedly subtracting lots of twenty-fours until I can't subtract anymore and I use whatever multiples of twenty-four I'm confident with that's why it's called ad hoc subtraction. My way of doing it might be different from yours. It's depending on which multiples of twenty-four you are very confident with.

I'm starting by subtracting one hundred twenty-fours, I can see that I can get at least one hundred that's two thousand, four hundred out of my number. And if I subtract that, I have two thousand seven hundred and eighty-four left to deal with. I can get another hundred twenty-fours out of that, here we go, two thousand four hundred again, subtract that and I'm left with three hundred and eighty-four. Now I can't get another hundred out of that but I could get ten twenty-fours. Ten twenty fours two hundred and forty subtract those and I'm left with a hundred and forty four. Now I can't get another ten can I? No. But I could get five twenty fours because that's half of ten so that's a hundred and twenty. So let's do that, five twenty-fours is a hundred and twenty. That leaves me with twenty-four, ah right, that's just one more twenty-four and subtract that and I have nothing left so all together, to get rid of the five thousand one hundred and eighty-four, I had to subtract one hundred, two hundred, two hundred and ten, two hundred and fifteen, two hundred and sixteen twenty-fours all together. So there's the answer to our division question-two hundred and sixteen.

Right, let's have a look at the next example, seven thousand nine hundred and twenty-seven divided by thirty-nine. Well, I'm going to start again with a hundred thirty-nines because I can clearly get a hundred out of this, three thousand nine hundred

subtract leaves me with four thousand and twenty-seven still to deal with. I can get another three thousand nine hundred out of that can't I? Three thousand nine hundred, subtract that and we have a hundred and twenty-seven left. Clearly, I can't get another hundred thirty-nine's out of that, I can't even get ten thirty-nines. How many could I manage? Well two thirty nines are seventy-eight, let's try that and that leaves us with err...forty-nine-right? Now forty-nine ah I can get another one thirty-nine so subtract another thirty-nine from that and there's ten left, and that's as far as I can go. Because I obviously can't get any more thirty-nines that ten is going to be a remainder and the total number of thirty-nines I've used, one hundred, two hundred, two hundred and two, two hundred and three over here, so the answer to my calculation is two hundred and three remainder ten. There you are that's division using ad hoc subtraction.