

## Chapter 17 - Calculations with Decimals

### Decimal division 4 minutes and 41 seconds

If you have a division that involves decimal numbers, you can always change it into a division that involves whole numbers only by making use of this really important principle in division. (Cymbal crash) the ratio of two numbers is unchanged if you multiply them both by the same number. Or if you divide them both by the same number. Let me show you what I mean, here's a division, twenty five point eight, divided by zero point six. If we multiply both these numbers by ten, we change them into whole numbers two fifty eight divided by six and because we've multiplied both numbers by the same number-ten the answer to the division question does not change. The ratio of the two numbers is unchanged. So, we just do two fifty-eight divided by six which is a straightforward division, forty-three.

Now I'm assuming here that you already know how to multiply and divide by ten or a hundred or a thousand, which is one of the basic principles you have to learn when handling decimal numbers. Here's another example, twenty-five point eight divided by zero point zero six, now to change that second number into a whole number I need to multiply by a hundred so I multiply both numbers by the same thing and multiply both numbers here by a hundred so we change the division into two thousand five hundred and eighty divided by six. That's a straightforward division involving whole numbers only. The answer four hundred and thirty.

Now what about this example? Two point five eight divided by zero point six I need to multiply the first number by a hundred to make it into a whole number, so I need to multiply both numbers by a hundred and I finish up with two hundred and fifty-eight divided by sixty. So here's another tip, if you have to divide by a multiple of ten, like sixty, you can divide first of all by six, and then divide by the ten. So we can change this two fifty eight divided by sixty into two fifty eight divided by six and then divided by ten so that's forty-three divided by ten and we know how to divide by ten. So there's the answer, four point three.

Now have a look at this example, zero point two five eight divided by six. Here I need to multiply by a thousand to change that zero point two five eight into a whole number. To multiply both of them by a thousand, two hundred and fifty eight divided by six thousand, now I use the same idea as I did in the last example, to divide by six thousand is the same as dividing by six and then dividing by a thousand. So we do the two fifty eight divided by six and divide the answer by a thousand. Forty-three divided by a thousand and we know how to do that, zero point zero four three. So there are a couple of tips on dividing numbers involving decimals.

First of all it's fundamental principle that if you multiply both the numbers involved in the division, by the same number, ten, hundred, a thousand, you do not change the answer. So you change the numbers into whole numbers by multiplying by an appropriate power of ten. And then the second tip, if you're dividing by so many hundreds or so many thousands or a multiple of ten, you can do that in two steps. So for example when we divided by six thousand, we divided by six and then by a thousand. With those two ideas, you can handle most division involving decimal numbers.