

# Adding and Subtracting Percentages

## Transcript

This video is going to explain how to add and subtract percentages. It is important to note the methods explained are not the only methods you can use.

Let's say you work at a garage and a customer has come in for a quote after a crash. To fix the damage, it will cost the customer \$425. You know that your company requires you to add 10% to the total amount.

How would you do it?

We will look at two methods – one with a calculator, and one without. Although this example is working out 10%, the underlying theory is the same for adding any percentages.

So the original cost is \$425, and we are adding 10%. If we have a calculator, it is easy to work this out. Simply type  $425 \times 10\%$  into your calculator. This will give you 42.5, which is 10% of 425. You then add this to your original cost amount, giving you an answer of 467.5. We then add the dollar sign and you have your final answer.

If you do not have a calculator to hand, you can work out the sums for the method just mentioned, or you can multiply the original number by the percentage that you need to add. To make this easier, we convert that percentage into a decimal. The original number is equivalent to 100%, and we want to know 10% more than this, so we are multiplying our original number by 110%. 110% as a decimal is 1.1.

Multiply the top numbers by the bottom numbers, from right to left, and we keep the digits in columns so not to get confused. This also ensures that our decimal point stays in the correct place.

$5 \times 1 = 5$ .  $2 \times 1$  is 2.  $4 \times 1$  is 4. Then we do the second digit, which in this case is 1 again. This time however, the answer to  $5 \times 1$  is written in the ones column. Finish off the sums and now we add these two numbers together. Because we kept these numbers in columns, we know to just add down.  $5 + 0$ ,  $5 + 2$ ,  $4 + 2$ ,  $0 + 4$ . Our final answer is 467.5 and we just change this into its monetary value. Note how we have also kept our decimal point in the same position.

So you would be quoting your customer \$467.50.

Now we are going to look at subtracting percentages. You've gone into a shop to buy a new phone. The original price was \$899 but there is a discount of 30% today. What is the new price of the phone?

The method we are looking at is to multiply the original number by the percentage you want to remain. Just like adding percentages, with a calculator this is simple. Enter  $899 \times 70\%$  into your calculator. We are using 70% (or 0.7 if you prefer) as this is the part of the original amount you will still be paying. The answer is 629.3. So  $\$899 - 30\% = \$629.30$ .

Without a calculator, we multiply just like we did before. This time, however, we will need to carry numbers across. As you can see here, the answer is still 629.3. Therefore, your new phone is going to cost you \$629.30.

To summarize, when you are subtracting a percentage from a number, multiply the original number by the percentage that you have left. When you are adding a percentage, multiply the percentage that you are trying to find by the original number and add them together. Or, find the total percentage needed and multiply that by the original number.

It is useful to know that once you have 10%, you can find 20% by doubling it, 5% by halving it, 25% by adding 20% and 5% together. 30% can be found by multiplying by 3. You can continue this trend with all multiples of 10.

Pause the video and try these.

For further examples and explanation, please contact us by email, on our website or come into the library.