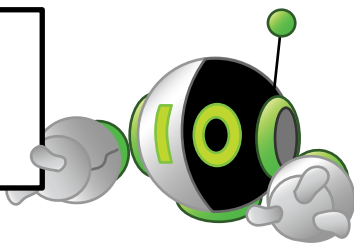


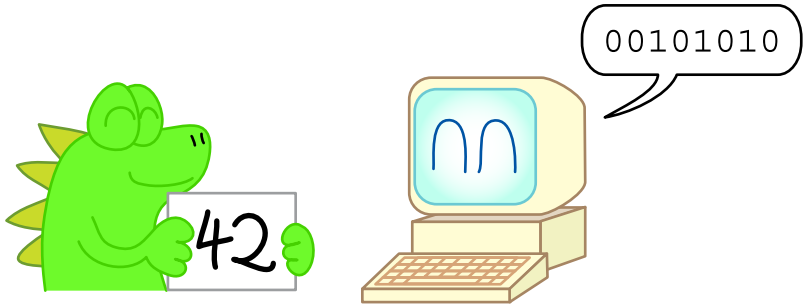
Binary Representations for Integers



Hey guys! How do you negate numbers?



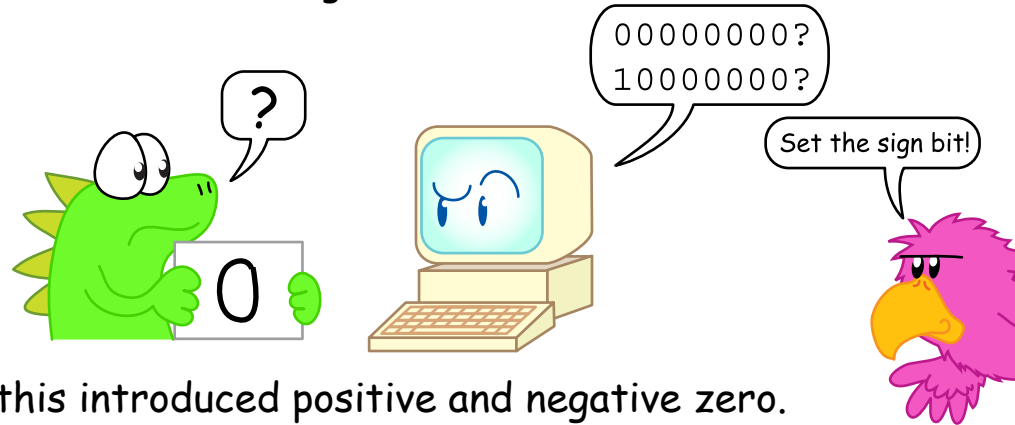
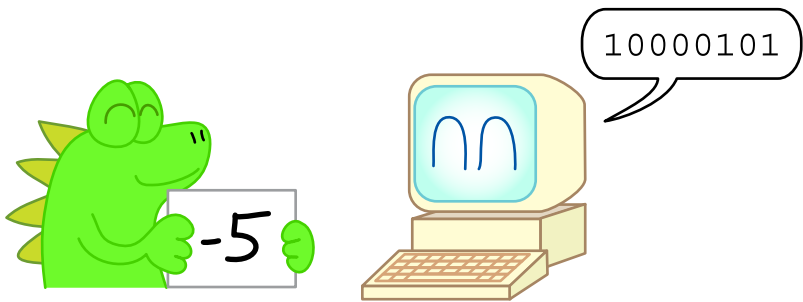
In the early days of computing, designers made computers express numbers using **unsigned binary**.
And they were content... Until there were negative numbers.



To include negative numbers, designers came up with **sign magnitude**.

That took care of the negative numbers...

But the computer had to count backwards for the negative numbers.

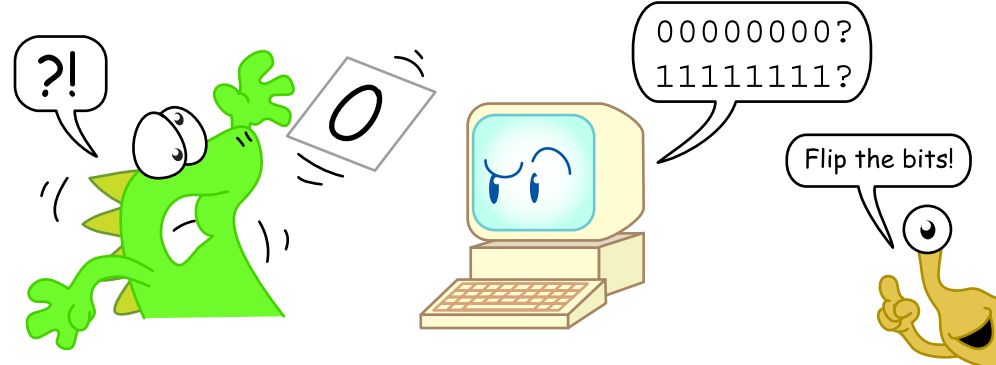
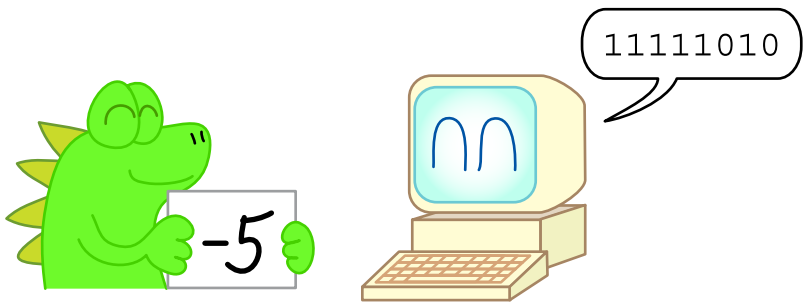


Plus, this introduced positive and negative zero.

Then designers created **one's complement**.

Now computers only had to count in one direction...

But there were still two zeroes!



Finally, designers developed **two's complement**.

Now, there was only one zero...

And they were content.

