Numbers and Math in ES6

WE'LL COVER THE FOLLOWING Binary Literals Math with binary numbers Octal Literals Math with octal numbers Math Math.trunc

In ES6 there are a bunch of additions to Numbers and the Math object. There are new Number literals, Binary and Octal, as well a ton of new methods for Math.

Binary Literals

In ES6 we have to ability to create binary literals. In order to do this we need to prefix our binary number with <code>0b</code> or <code>0B</code>.

```
console.log(0b001) // The number 1
console.log(0b010) // The number 2
console.log(0b011) // The number 3
console.log(0b100) // The number 4
```

If you have never worked with binary numbers before, the pattern goes like this: Starting for the right to the left, the smallest number is as far right as possible. For example <code>0001</code> in binary is <code>1</code>.

8	4	2	1	
0	0	0	1	
	-		-	

If we wanted to get the numbers 3 it would be 0011, adding 2 and 1.

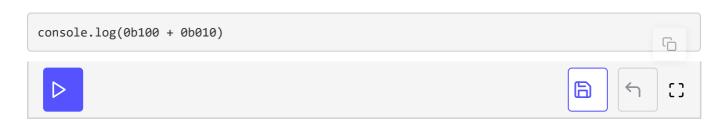
8	4	2	1
0	0	1	1

Let's do one more, how about 10? Well that would be 1010 or 8 + 2.

8	4	2	1
1	0	1	0

Math with binary numbers

We can perform mathematical operations with the binary numbers just like we normally would.



Can you guess what that adds up too? Well 6 of course, the neat thing is we can add binary and integer numbers together.



This will produce 15.

Octal Literals

Just like binary literals we are able to create octal literals as well. Octal numbers are a base 8 number system, binary is a base 2 system. In Octal numbers each place is a multiple of 8, and the number present in that place will be used to determine the value. Let's look at some examples

512	64	8	1
0	0	0	0

Like the binary literals we use oo or oo to denote it what number type it will be, so ooool will be the number 1.

512	64	8	1
0	0	0	1

If we had <code>000011</code> we would get <code>9</code>. Now we don't just have to put a <code>0</code> or <code>1</code> in the place here, we can use a number from <code>0</code> to <code>7</code>.

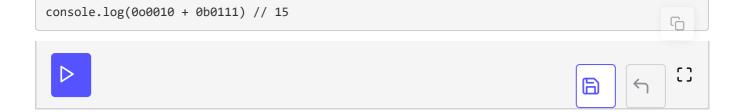
So if we had 000020 this would be 16, as it takes the multiple in that place and times it by 2.

Math with octal numbers

Just like the binary literal, octals can be used to preform mathematical operations on with mixed number types.



We can even mix it with binary numbers.



Math

In ES6 there are a ton of new Math methods. These include Math.clz32, Math.imul, Math.sign, Math.log10, Math.log2, Math.log1p, Math.expm1, Math.cosh, Math.sinh, Math.tanh, Math.acosh, Math.asinh, Math.atanh, Math.trunc, Math.fround, Math.cbrt, Math.hypot...woof that is a lot! A lot of the additions here are for Trigonometry.

We won't look at all of these, but I would like to show you one method, that is Math.trunc.

Math.trunc

The .trunc() method is used to truncate the number provided to it, for example:



It is used to just cut off the numbers after the decimal, this differs from Math.floor, Math.ceil and Math.round in that it just cuts them off, it does not perform any rounding on the number.