Perfect Numbers

A perfect number is a whole number that is equal to the sum of its factors, excluding the number itself.

Examples of perfect numbers

28

Why?

Factors of 28:   1, 2, 4, 7, 14, ~~28~~

1 + 2 + 4 + 7 + 14 = 28

496

Factors of 496:   1, 2, 4, 8, 16, 31, 62, 124, 248, ~~496~~

1 + 2 + 4 + 8 + 16 + 31 + 62 + 124 + 248 = 496

Binary

The decimal system uses base 10.

That means every time you reach the value 10 in a place value, instead of writing 10 you write zero and add one to the next place value up.

What if we used a different base?

You could use any base. For example if we decided to have a number system with base 8 it would look like this:

0, 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 20…

Notice how we never actually end up writing the number 8.

So what is special about Binary?

Binary uses base 2 instead. It means that using Binary all numbers can be written in terms of 0 and 1.

As soon as you reach the value of 2 in a place value, instead of writing 2 you write zero and add one to the next place value up.

0, 1, 10, 11 and so on….

Binary is a really useful number system for computers and electronic devices.