Understanding Binary Numbers

Each position in a binary number represents 2 raised to a power.

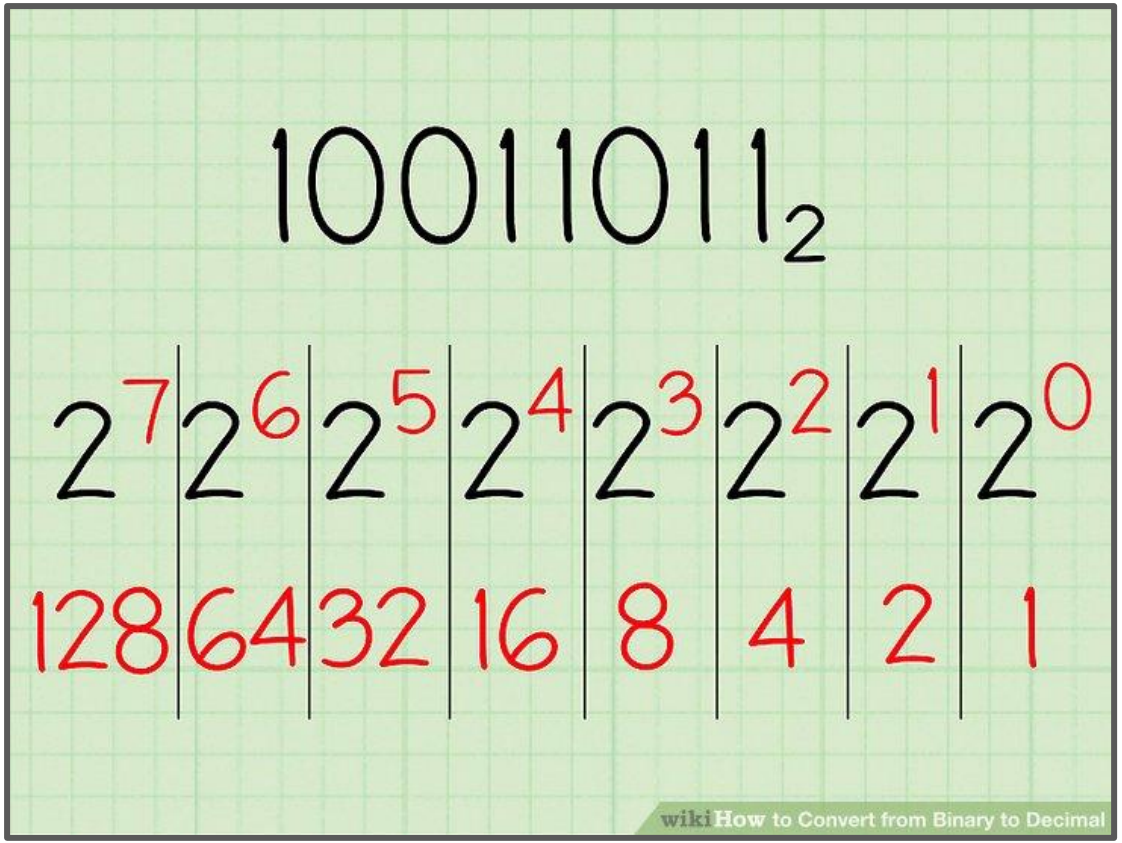
Starting from the right and moving left, the positions count from 0 up.

Position 0 (all the way to the right):
$2 ^ 0 = 1$

Position 1:
$2 ^ 1 = 2$

Position 2:
$2 ^ 2 = 4$

And so on….



Decoding a Binary Number

The first step to finding the base 10 value of a binary number is finding the value at each position.

For each position that has a **1** as the value in the binary number, we use the value of
2 ^ position.

For any position that has a **0** as the value in the binary number, we use a value of **0**.

We then total the values at each position to determine the base 10 value of the binary number.