Hashing:

Each ujnique input wil produce an unique output,

You can og from input to output, bujt never og frokm output to input.

One way function. Very complex

Number represented in base 16, represents numbers witgh digit and letters from 0-9 and a-f

A hash gives a unique fingerprint, if anything changes the result will be completely different

1. The hashing algorithm used in bitcoin is called SHA-256
2. It is almost impossible to brute force because for every single change you make, for example adding one letter, the entire output of the function changes completely. So it is practically impossible to find back to the input function without having the private key.
3. A hash function is a function where you can go from input to output, but you can not reverse it. This is because if you change a single letter, the entire input will change. Hash function is used to secure data and now that someone have not tampered with the data. Because the output you get is the unique fingerprint for that data and you will know if someone tampered with it.
4. Hashes are used in bitcoin to write new transactions into the blochain system through the mining process and is therefore important in block creation. It is important for proof of work, which means that for a transaction to be added to the blockchain because that transaction has a unique hash, and the unique hash is necessary to validate the transaction and know that it has not been tampered . Resulting in the transaction being added tot he blockchain.
5. A collision resistent hash means that one input can not have the same output as another input.