

## How to convert a decimal to binary

1. Divide the **number** by 2.
2. Get the integer quotient for the next iteration.
3. Get the remainder for the **binary** digit.
4. Repeat the steps until the quotient is equal to 0.

Below are 3 examples.

### Example of 7 to binary:

7 to Binary

Result string

$7/2=3$   
 $3/2=1$   
 $1/2=0$

00000111

fill in the zeros

### Example 22 to Binary:

22 to Binary

Result string

$22/2=11$   
 $11/2=5$   
 $5/2=2$   
 $2/2=1$   
 $1/2=0$

00010110

fill in the zeros

Answer = 00010110

## 31 To binary:

31 To Binary

Result String

31%2 = 1  
31/2 = 15  
15%2 = 1  
15/2 = 7  
7%2 = 1  
7/2 = 3  
3%2 = 1  
3/2 = 1  
fill in with zeros

00011111

Answer = 00011111

The diagram illustrates the conversion of the decimal number 31 to its binary representation. It shows a series of division steps by 2, recording the remainders. The remainders, read from bottom to top, are 1, 1, 1, 1, 1, 0, 0, 0. These are then mapped to the binary string 00011111. The final answer is 00011111.