

# Number System

## Definition

Method to represent numeric value or quantities different digits.

## Binary Number System

1. Number system using base 2.
2. It uses only two digits i.e 0 and 1.

## Decimal to Binary conversion

For e.g  $\rightarrow$

Number  $\Rightarrow 10$

	Rem
$10/2 \rightarrow 5$	0
$5/2 \rightarrow 2$	1
$2/2 \rightarrow 1$	0
$1/2 \rightarrow 0$	1

## Bitwise method

$1010 \rightarrow 101 \rightarrow 10 \rightarrow 1$   
 $\downarrow \quad \quad \downarrow \quad \quad \downarrow \quad \downarrow$   
 $0 \quad \quad \quad 1 \quad \quad 0 \quad 1$



Double Week 1

## Binary to Decimal

$$\text{Binary} = (1010)_2$$

$$1010 \div 10 \Rightarrow 0$$

$$\text{dec} \Rightarrow 0 + 0 \times 2^0 \Rightarrow 0$$

$$\Downarrow$$

$$101 \Rightarrow 1$$

$$\text{dec} \Rightarrow 0 + 1 \times 2^1 \Rightarrow 2$$

$$\Downarrow$$

$$10 \Rightarrow 0$$

$$\text{dec} \Rightarrow 2 + 0 \Rightarrow 2$$

$$\Downarrow$$

$$1 \Rightarrow 1$$

$$\text{dec} \Rightarrow 2 + 8$$

$$\text{dec} \Rightarrow 10$$