**We are skipping all the necessary steps and just including the base requirements**

**Project Scope:** The purpose of this project is to solve number system conversion problems. Here users can easily input any type of number and get equivalent other types of numbers instantly. Also they can convert text to binary and vice versa.

**Reference:**

* [**https://www.rapidtables.com/math/number/Numeral\_system.html**](https://www.rapidtables.com/math/number/Numeral_system.html#numeral)
* [**https://www.rapidtables.com/convert/number/binary-to-decimal.html**](https://www.rapidtables.com/convert/number/binary-to-decimal.html)
* [**https://www.amazon.com/Software-Engineering-Practitioners-Roger-Pressman/dp/0078022126**](https://www.amazon.com/Software-Engineering-Practitioners-Roger-Pressman/dp/0078022126)
* [**http://iansommerville.com/software-engineering-book/**](http://iansommerville.com/software-engineering-book/)

**Product Perspective:**

# 

# Numeral Systems

* [**Numeral System**](https://www.rapidtables.com/math/number/Numeral_system.html#numeral)
* [**Binary Numeral System**](https://www.rapidtables.com/math/number/Numeral_system.html#binary)
* [**Octal Numeral System**](https://www.rapidtables.com/math/number/Numeral_system.html#octal)
* [**Decimal Numeral System**](https://www.rapidtables.com/math/number/Numeral_system.html#decimal)
* [**Hex Numeral System**](https://www.rapidtables.com/math/number/Numeral_system.html#hex)
* [**Numeral System Conversion Table**](https://www.rapidtables.com/math/number/Numeral_system.html#table)

## 

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## Numeral System



***b* - numeral system base**

***dn -* the n-th digit**

***n* - can start from a negative number if the number has a fraction part.**

***N*+1 - the number of digits**

### Binary Numeral System - Base-2

**Binary numbers use only 0 and 1 digits.**

**B denotes binary prefix.**

#### **Examples:**

**101012 = 10101B = 1×24+0×23+1×22+0×21+1×20 = 16+4+1= 21**

**101112 = 10111B = 1×24+0×23+1×22+1×21+1×20 = 16+4+2+1= 23**

**1000112 = 100011B = 1×25+0×24+0×23+0×22+1×21+1×20=32+2+1= 35**

### 

### Octal Numeral System - Base-8

**Octal numbers use digits from 0..7.**

#### **Examples:**

**278 = 2×81+7×80 = 16+7 = 23**

**308 = 3×81+0×80 = 24**

**43078 = 4×83+3×82+0×81+7×80= 2247**

## 

## Decimal Numeral System - Base-10

**Decimal numbers use digits from 0..9.**

**These are the regular numbers that we use.**

#### **Example:**

**253810 = 2×103+5×102+3×101+8×100**

## 

## Hexadecimal Numeral System - Base-16

**Hex numbers use digits from 0..9 and A..F.**

**H denotes hex prefix.**

#### **Examples:**

**2816 = 28H = 2×161+8×160 = 40**

**2F16 = 2FH = 2×161+15×160 = 47**

**BC1216 = BC12H = 11×163+12×162+1×161+2×160= 48146**

## Numeral systems conversion table

|  |  |  |  |
| --- | --- | --- | --- |
| Decimal  Base-10 | Binary  Base-2 | Octal  Base-8 | Hexadecimal  Base-16 |
| 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 |
| 2 | 10 | 2 | 2 |
| 3 | 11 | 3 | 3 |
| 4 | 100 | 4 | 4 |
| 5 | 101 | 5 | 5 |
| 6 | 110 | 6 | 6 |
| 7 | 111 | 7 | 7 |
| 8 | 1000 | 10 | 8 |
| 9 | 1001 | 11 | 9 |
| 10 | 1010 | 12 | A |
| 11 | 1011 | 13 | B |
| 12 | 1100 | 14 | C |
| 13 | 1101 | 15 | D |
| 14 | 1110 | 16 | E |
| 15 | 1111 | 17 | F |
| 16 | 10000 | 20 | 10 |
| 17 | 10001 | 21 | 11 |
| 18 | 10010 | 22 | 12 |
| 19 | 10011 | 23 | 13 |
| 20 | 10100 | 24 | 14 |
| 21 | 10101 | 25 | 15 |
| 22 | 10110 | 26 | 16 |
| 23 | 10111 | 27 | 17 |
| 24 | 11000 | 30 | 18 |
| 25 | 11001 | 31 | 19 |
| 26 | 11010 | 32 | 1A |
| 27 | 11011 | 33 | 1B |
| 28 | 11100 | 34 | 1C |
| 29 | 11101 | 35 | 1D |
| 30 | 11110 | 36 | 1E |
| 31 | 11111 | 37 | 1F |
| 32 | 100000 | 40 | 20 |

## 

**Product Features:**

* Decimal to Binary Conversion
* Decimal to Octal Conversion
* Decimal to Hexadecimal Conversion
* Binary to Decimal Conversion
* Binary to Octal Conversion
* Binary to Hexadecimal Conversion
* Octal to Decimal Conversion
* Octal to Binary Conversion
* Octal to Hexadecimal Conversion
* Hexadecimal to Decimal Conversion
* Hexadecimal to Binary Conversion
* Hexadecimal to Octal Conversion
* Reset Every Field
* Less Amount of User interaction
* Real Time Conversion
* Single Page Application