

Octal Number System

- The octal number system has a radix of 8 and therefore has eight distinct digits.
- The independent digits are 0, 1, 2, 3, 4, 5, 6 and 7.
- For example,
 - The first 8 numbers in the binary number system would be 0, 1, 2, 3, 4, 5, 6 and 7

Binary	Decimal	Octal no.
000	0	0
001	1	1
010	2	2
011	3	3
100	4	4
101	5	5
110	6	6
111	7	7

Decimal to Octal Conversion

- Example :

$$- (150.65)_{10} = (...?.....)_8$$

8	150	
8	18	6
8	2	2
	0	2

- $0.65 \times 8 = 5.2 = 0.2$ with a carry of 5
- $0.2 \times 8 = 1.6 = 0.6$ with a carry of 1
- $0.6 \times 8 = 4.8 = 0.8$ with a carry of 4
- $0.8 \times 8 = 6.4 = 0.4$ with a carry of 6
- $0.4 \times 8 = 3.2 = 0.2$ with a carry of 3
- $0.2 \times 8 = 1.6 = 0.6$ with a carry of 1

ans (622.514631)₈

Octal to Binary Conversion

- Example

$$(622.5146)_8 = (\dots? \dots)_2$$

(110010010.101001100)