

Number System

Q1. Convert:

(i) $(53AB)_{16}$, to $(?)_8$

(ii) $(6293)_{10}$, to $(?)_4$

Ans1-

i) $(53AB)_{16}$, to $(?)_8$

1-convert hexadecimal into decimal number-

$$\begin{aligned}(53AB)_{16} &= (B \cdot 16^0) + (A \cdot 16^1) + (3 \cdot 16^2) + (5 \cdot 16^3) \\ &= (11 + 160 + 768 + 20,480) \quad \text{by using } B=11, A=10; \\ &= (21419)_{10}\end{aligned}$$

$(21419)_{10} = (51653)_8$:

8	21419	
8	2677	3
8	334	5
8	41	6
	5	1

$$= (53AB)_{16} = (21419)_{10} = (51653)_8$$

Answer (ii)

$$= (6293)_{10}, \text{ to } (?)_4$$

4	6293	
4	1573	1
4	393	1
4	98	1
4	24	2
4	6	0
	1	2

$$(6293)_{10} = (1202111)_4$$

Q2-convert:

(i) $(253.65)_{10} = (?)_2$

Ans2: (i) $(253.65)_{10} = (?)_2$

2	253	
2	126	1
2	63	0
2	31	1
2	15	1
2	7	1
2	3	1
	1	1

$$(.65)*2=1.30$$

$$.30*2=0.60$$

$$.60*2=1.20$$

$$.20*2=0.40$$

$$.40*2=0.80$$

$$.80*2=1.60$$

$$=(253.65)_{10} = (11111101.101001)_2$$