Base 10 to base 16

i) $(2020)_{10} \rightarrow (\ )_{16}$

16 | 2020
16 | 126 — 4
7 — 14

14 = E

= 7144

= 7E4

$(2020)_{10} = (7E4)_{16}$

ii) $(2020.65625)_{10} \rightarrow (\ )_{16}$

For real part $(2020)_{10}$
$= (7E4)_{16}$

| | Real Part | Fractional Part |
|---|---|---|
| 0.65625 × 16 | 10 | 0.5 |
| 0.5 × 16 | 8 | 0.0 |

From here

$(0.65625)_{10} = (0.A8)_{16}$

$(2020.65625)_{10} = (7E4.A8)_{16}$

iii) $(172)_{10} \rightarrow (\ )_{16}$

16 | 172
10 — 12
A C

From here $(172)_{10} = (AC)_{16}$

iv) $(172.983)_{10}$

Real part is $(72)_{10}$

$(172)_{10} = (AC)_{16}$

Fractional part $(0.983)_{10}$

| | Real Part | |
|---|---|---|
| 0.983 × 16 | 15 - F | 0.728 |
| 0.728 × 16 | 11 - B | 0.648 |
| 0.648 × 16 | 10 - A | 0.368 |
| 0.368 × 16 | 5 | 0.888 |

$(0.983)_{10} = (0.FBA5)_{8}$

② Decimal number 49 into Hexadecimal

$(49)_{10} \rightarrow (\ )_{16}$

16 | 49
3 - 1

$(49)_{10} \rightarrow (31)_{16}$

③ $(122810)_{10} \rightarrow (\ )_{16}$

16 | 122810
16 | 7675 - 10 = A
16 | 479 - 11 → B
16 | 29 - 15 → F
1 - 12 → D

1DFBA

$(122810)_{10} \rightarrow (1DFBA)_{16}$

④ $(60010)_{10} \rightarrow (\ )_{16}$

16 | 60010
16 | 3750 - 10 = A
16 | 234 - 6
14 - 10 = A
E

$(60010)_{10} \rightarrow (EA6A)_{16}$

⑤ $(1542)_{10} \rightarrow (\ )_{16}$

16 | 1542
16 | 96 - 6
6 - 0

⇒ 606

$(1542)_{10} \rightarrow (606)_{16}$

⑥ $(175)_{10} \rightarrow (\ )_{16}$

16 | 175
10 - 15 - F
↳ A

= AF

$(175)_{10} \rightarrow (AF)_{16}$

⑦ i) 105

$(105)_{10} \rightarrow (\ )_{16}$

16 | 105
6 - 69

= 69

$(105)_{10} \rightarrow (69)_{16}$

ii) 450

$(450)_{10} \rightarrow (\ )_{16}$

16 | 450
16 | 28 - 2
1 → 12 ⇒ C

= 1C2

$(450)_{10} \rightarrow (1C2)_{16}$

iii) 199

$(199)_{10} \rightarrow (199)_{16}$

16 | 199
16 | 12 - 7
↓
C

= C7

$(199)_{10} \rightarrow (C7)_{16}$

iv) 3000

$(3000)_{10} \rightarrow (\ )_{16}$

16 | 3000
16 | 187 - 8
11 - 11 - B
↓
B

= BB8

$(3000)_{10} \rightarrow (BB8)_{16}$

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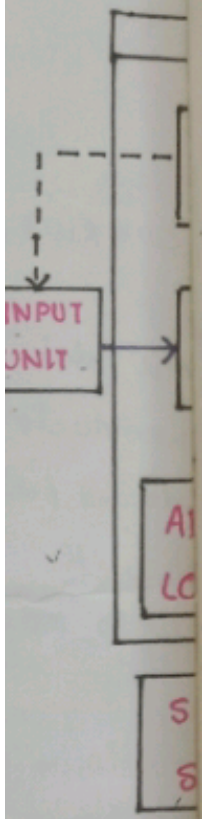


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(8) Convert Base 10 to Base 8

i) $(1032)_{10} \rightarrow (\quad)_8$

8 | 1032
8 | 129 - 0
8 | 16 - 1
2 - 0

$= 2010$

$(1032)_{10} = (2010)_8$

ii) $(1032.6875)_{10} = (\quad)_8$

real part $(1032)_{10}$

so, $(1032)_{10} = (2010)_8$

Fractional part:

| | Real part | Fractional part |
|---|---|---|
| $0.6875 \times 8$ | 5 | 0.5 |
| $0.5 \times 8$ | 4 | 0.0 |

$(0.6875)_{10} = (0.54)_8$

we have

$(1032.6875)_{10} = (2010.54)_8$

(9) i. $(172)_{10} \rightarrow (\quad)_8$

8 | 172
8 | 21 - 4
2 - 5

$= 254$

here $\rightarrow (172)_{10} = (254)_8$

ii. $(172.878)_{10} \rightarrow (\quad)_8$

real part

$(172)_{10} \rightarrow (254)_8$

1. a control unit 2. mouse

Fractional part

multiplication method

| | Real | Fractional |
|---|---|---|
| 0.878 × 8 | 7 | 0.028 |
| 0.028 × 8 | 0 | 0.192 |
| 0.192 × 8 | 1 | 0.536 |
| 0.536 × 8 | 4 | 0.288 |

$(0.878)_{10} = (7014)_8$

We have

$(172.878)_{10} = (254.7014)_8$

(10) convert $(127)_{10}$ to octal

$(127)_{10} \rightarrow (\ )_8$

8 | 127

8 | 15 - 7

1 - 7

$= 177$ $(127)_{10} \rightarrow (177)_8$

(11) Identify the IP address class identification

i) 10.250.1.1

Limit of class A - 1-126

So. 10.250.1.1 belongs to class A

ii) 193.42.1.1

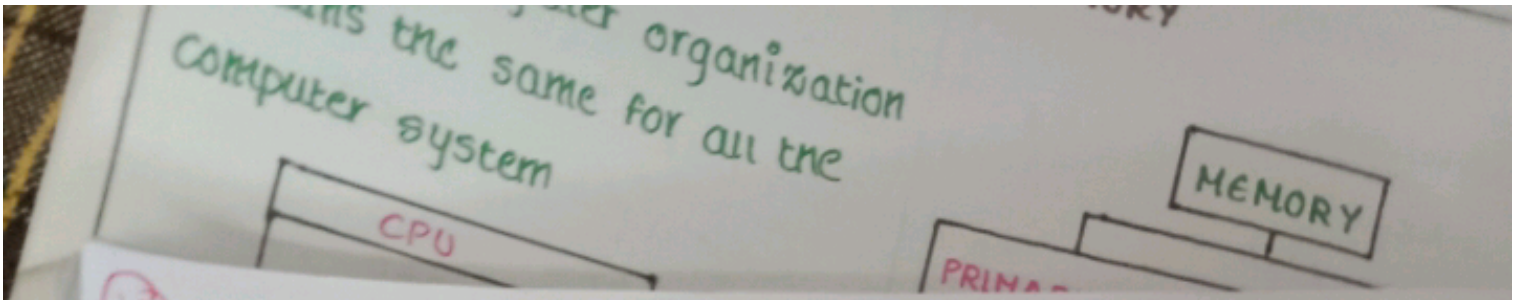
Limit of class B is 128-191

So 193.42.1.1 belongs to class B

iii) 249.240.80.78

Limit of class E is 240-254

So. 249.240.80.78 belongs to class E




(12) IP address class Identification

i) 215.45.45.0

Limit of class C is ~~1-121~~ 192-223

So, 215.45.45.0 belongs to class C

ii) 33.0.0.0

Limit of class A is 1-126

So 33.0.0.0 belongs to class A

iii. 158.98.80.0

Limit of class B is 128-191

So 158.98.80.0 belongs to class B.