Subnet Questions

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Q1) 172.30.0.0\16 (↑ Prefix length) — Hosts – 500 (atleast), Subnets – 100 subnets, Prefix Length

2 Subnets – 1 bit
4 Subnets – 2 bit

100 Subnets – 2^7 – 128 = 7 bits

16 + 7 = 23 ⟹

172.30.0.0 \ 23 ⟷ Hosts –

32 bits ⟷ 23 bits → 9 bits – $2^9 - 2$ = 510 ≥ 500

Remaining bits:

Prefix Length: 23

Q2) 172.21.111.201\20 — What does Subnet (Network ID) host belong to

172.21 → 16

111 – 0110 1111 — 64+32+15 — 96 + 15 = 111

= 4 bits

2) 0110 0000 . 0000 0000

Ad: subnet: 172.21.96.0

0110 0000 . 0000 0000
0110 1111 . 1111 1111

172.2111 . . 255

Q3) 192.168.91. — Incomplete

Q4) 172.16.0.0\16 — 4 Subnets — 2 bits

2nd Subnet – 172.16.0.0 \16

172.16.00 000000.0000 0000

00
01 – 2nd subnet
10
11

01 111111 (63) — 255 − 128 = 127

127 — 64 + 63 = 127

N: ID: 172.16.64.0 B: ID: 172.16.127.255

Q5) Divide 172.30.0.0\16 network into subnets of 1000 host

Find the no. of Subnets

1000 hosts — 1024 — 10 bits (1000)

Host bits – 10 ⟷ Host ⟷

Network bits = 32 − 16 − 10 = 6 bits

(= 2^6 = 64 subnets)