

IP

1) a) 192.168.100.17 4 bits
 Class C → general mask 255.255.255.0
 192.168.100.17 (17)
 255.255.255.11110000 (240)
 00010000
 → 192.168.100.16 → Subnet
 ↑
 Network Address
 192.168.100.00010000 } 192.168.100.31 → Broadcast
 1111
 cost
 192.168.100.17 - 192.168.100.31 → 14 host

b) 192.168.100.66 3 bits
 Class C → mask 255.255.255.0
 192.168.100.01000010 (66)
 255.255.255.11100000 (224)
 01000000
 → 192.168.100.64 Network
 192.168.100.01000010 - 192.168.100.95 Broadcast
 1111
 192.168.100.65 - 192.168.100.94 → 30 host

c) 172.16.5/20
 Class B mask 255.255.240
 172.16.10.5 → 00001101.00000101
 00000000 00000000
 00001111 11111111
 → 172.16.10.0 Network
 → 172.16.15.255 Broadcast
 172.16.10.0 - 172.16.15.255 → 4096 host

d) 172.16.10.33/25 255.255.252.0

└─ 1111.1111.11111100.00000000
└─ 22 bits 10 bits

- 172.16.0000101000100001 → 172.16.8.0
255 255 11111100.00000000
00001000.00000000

network

- 172.16.0000101000100001 → 172.16.11.255
11111111
~~00001000~~

broadcast

- 172.16.8.1 - 172.16.11.254 → $2^{10} - 2 = 1022$ hosts