

Exercise 1 network=182.182.0.0 mask=255.255.255.0

Total subnetworks: 256

Available nodes in each network: 254

Exercise 2 network=182.182.0.0 mask=255.255.224.0

represent it in / format: /19

Total subnetworks: 8

Available nodes in each network: $2^{13} - 2$

Exercise 3 Network number=192.168.5.0 needs to have 5 PC's in each subnetwork

1. which class? C
2. maximum number of subnets= 32
3. subnet mask = 255.255.255.248

Exercise 4 Write down the subnet mask in decimal numbers corresponding to / x

/9 ? 255.128.0.0	/18 255.255.192.0	/25 255.255.255.128
/10 255.192.0.0	/19 255.255.224.0	/26 255.255.255.192
/11 255.224.0.0	/20 255.255.240.0	/27 255.255.255.224
/12 255.240.0.0	/21 255.255.248.0	/28 255.255.255.240
/13 255.248.0.0	/22 255.255.252.0	/29 255.255.255.248
/14 255.252.0.0	/23 255.255.254.0	/30 255.255.255.252
/15 255.254.0.0	/24 255.255.255.0	/31 ? (Not applicable)

Exercise 5 Write down the broadcast address of 10.1.1.1 with the following subnet masks.

Ignore the restriction of invalid first subnet and last subnet.

/8 10.255.255.255	/17 10.1.127.255	/25 10.1.1.127
/10 10.63.255.255	/18 10.1.63.255	/26 10.1.1.63
/11 10.31.255.255	/19 10.1.31.255	/27 10.1.1.31
/12 10.15.255.255	/20 10.1.15.255	/28 10.1.1.15
/13 10.7.255.255	/21 10.1.7.255	/29 10.1.1.7
/14 10.3.255.255	/22 10.1.3.255	/30 10.1.1.3
/15 10.1.255.255	/23 10.1.1.255	
/16 10.1.255.255	/24 10.1.1.255	

Exercise 6 Write down the broadcast of the following IP. Which one of the following IP is not a valid IP?

128.1.2.3/29	128.1.2.7	16.65.30.1/20	16.65.31.255
128.5.6.7/28	128.5.6.15	16.65.60.1/19	16.65.63.255
128.4.5.6/30	128.4.5.7	16.65.100.1/18	16.65.127.255
128.3.4.5/26	128.3.4.63	16.65.200.1/17	16.65.255.255
128.10.15.20/27	128.10.15.31	16.65.1.1/16	16.65.255.255
128.5.160.3/23	128.5.161.255	16.65.0.0/15	16.65.255.255
128.6.7.10/25	128.6.7.127	16.65.3.4/14	16.67.255.255
128.7.6.4/22	128.7.7.255	16.65.100.200/13	16.71.255.255
128.6.27.8/21	128.6.31.255	16.65.128.255/12	16.79.255.255

Exercise 7 Which of the following IP does not belong to the same network as the others in the same group?

Group 1	Group2	Group3
146.201.26.123/25	64.11.2.3/11	**64.10.2.3/12
**146.201.26.100/25	64.22.3.4/11	64.20.3.4/12
146.201.26.130/25	**64.33.4.5/11	64.30.4.5/12

Exercise 8 If a network needs to accommodate 2000 hosts what is the **maximum** slash number? What is the subnet mask in decimal number of this slash number?

$2^{10}=1024$ $2^{11}=2048$ $32-11=21 \implies /21$ 255.255.248.0

Exercise 9 A PC has been assigned the IP 146.201.26.27 and subnet mask 255.255.255.0. A packet with which of the following IP as its destination address would be accepted by this PC?

146.201.26.27

146.201.255.255

127.0.0.1

All of them

Ans: 146.201.26.27, 127.0.0.1, 146.201.26.255, 255.255.255.255

Exercise 10 What are the broadcast address of the following IP address?

(1) 10.10.10.10/30

10.10.10.11

(2) 10.100.100.100/25

10.100.100.127

(3) 10.80.0.0/12

10.95.255.255

(4) 10.30.30.1/15

10.31.255.255

(5) 10.10.10.10/21

10.10.15.255

(6) 10.10.10.10/19

10.10.31.255