

# Solution to Exercise 1

Soumis par CCNA

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- Subnet 192.168.10.0/27

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Step 1 : IP class

192.168.10.0/27 (classless) --> 192.168.10.0/24 (C- class)

-

Step 2 : host part

27  
26  
25  
24  
23  
22  
21  
20

1  
1  
1

0  
0  
0  
0  
0

-->  $2^7+2^6+2^5 = 128+64+32 = 224$

-

Step 3 : number of subnets

$2^3-2 = 6$  subnets available

-

Step 4 : number of hosts per subnet

$25-2 = 30$  hosts per subnet

-

Step 5 : block size

Block size =  $256-224 = 32$

-

Step 6 : subnet mask

Subnet mask = 255.255.255.224

-

Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1

192.168.10.32

33-->62

192.168.10.63

2

192.168.10.64

65-->94

192.168.10.95

3

192.168.10.96

97-->126

192.168.10.127

4

192.168.10.128

129-->158

192.168.10.159

5

192.168.10.160

161-->190

192.168.10.191

6

192.168.10.192

193-->222  
192.168.10.223

- Subnet 192.168.10.0/28

-  
Step 1 : IP class

192.168.10.0/28 (classless) --> 192.168.10.0/24 (C- class)

-  
Step 2 : host part

27  
26  
25  
24  
23  
22  
21  
20

1  
1  
1

1

0  
0  
0  
0

-->  $2^7+2^6+2^5+2^4 = 128+64+32+16 = 240$

-  
Step 3 : number of subnets

$2^4-2 = 14$  subnets available

-  
Step 4 : number of hosts per subnet

$$24-2 = 14 \text{ hosts per subnet}$$

-  
Step 5 : block size

$$\text{Block size} = 256-240 = 16$$

-  
Step 6 : subnet mask

$$\text{Subnet mask} = 255.255.255.240$$

-  
Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1  
192.168.10.16  
17-->30  
192.168.10.31

2  
192.168.10.32  
33-->46  
192.168.10.47

14  
192.168.10.224  
225-->238  
192.168.10.239

- Subnet 200.100.10.0/29

-  
Step 1 : IP class

200.100.10.0/29 (classless) --> 200.100.10.0/24 (C- class)

-  
Step 2 : host part

27  
26  
25  
24  
23  
22  
21  
20

1  
1  
1

1

1

0  
0  
0

-->  $2^7+2^6+2^5+2^4+2^3 = 128+64+32+16+8 = 248$

-  
Step 3 : number of subnets

$2^5 - 2 = 30$  subnets available

Step 4 : number of hosts per subnet

$$2^3 - 2 = 6 \text{ hosts per subnet}$$

-

Step 5 : block size

$$\text{Block size} = 256 - 248 = 8$$

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Step 6 : subnet mask

$$\text{Subnet mask} = 255.255.255.248$$

-

Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1

200.100.10.8

9-->14

200.100.10.15

2

200.100.10.16

17-->22

200.100.10.23

6

200.100.10.240

241-->246

200.100.10.247

