Subnetting Scenarios

Scenario #1: What is the broadcast ID for 223.209.177.133/29 network?

Logic: Determine the subnet mask:

11111111.11111111.11111111.11111000. I cannot use the lasts 3 bits, they are host bits. I determine every combination of 5 network bits (e.g. 223.209.177.00000XXX)

223.209.177.00001XXX = 223.209.177.8

223.209.177.00010XXX = 223.209.177.16

223.209.177.00011XXX = 223.209.177.24

223.209.177.00100XXX = 223.209.177.32

223.209.177.00101XXX = 223.209.177.40

223.209.177.00110XXX = 223.209.177.48

223.209.177.00111XXX = 223.209.177.56

223.209.177.01000XXX = 223.209.177.64

223.209.177.01001XXX = 223.209.177.72

223.209.177.01010XXX = 223.209.177.80

223.209.177.01011XXX = 223.209.177.88

223.209.177.01100XXX = 223.209.177.96

223.209.177.01101XXX = 223.209.177.104

223.209.177.01110XXX = 223.209.177.112

223.209.177.01111XXX = 223.209.177.120

\*223.209.177.10000XXX = 223.209.177.128 (network ID)

223.209.177.129-223.209.177.134 (range)

223.209.177.135 (broadcast ID)

\*223.209.177.10001XXX = 223.209.177.136

223.209.177.10010XXX …

223.209.177.10011XXX …

Scenario #2: What is the network ID for 221.230.76.99/27?

A.221.230.76.88/27

>B.221.230.76.96/27

C.221.230.76.96/26

D.221.230.78.96/27

Logic: Determine the subnet mask: 255.255.255.224. Convert last octet into binary: 1110000.

Deteermine every possible combination of network bits: 00000000,00100000,01000000,01100000,10000000,10100000,11000000,11100000 = 0,32,64,96,128,160,192,224

Scenario #3: You have 209.51.44.0/24, you need to subnet into 5 networks, what is your new subnet mask?

A.255.255.255.252

B.225.255.255.240

>C.255.255.255.224

D.255.255.255.192

Logic: How many bits do I need to create 5 networks? 3-bits. New subnet mask. 24-bits + 3-bits = 27 bits. Covert to subnet mask: 11111111.11111111.11111111.11100000 = 255.255.255.224

Scenario #4: You want to covert 192.168.10.0/24 to binary. What represents that conversion?

A.10100000.10101000.00001010.00000000

B.11000000.11100000.00001010.00000000

C.11000000.10101000.00001100.00000000

>D.11000000.10101000.00001010.00000000

Bonus:

Scenario #5: 191.199.67.97 255.255.248.0 is a host in which network?

>A.191.199.64.0 255.255.248.0

B.191.199.0.0 255.255.248.0

C.191.199.32.0 255.255.248.0

D.191.199.16.0 255.255.248.0

Scenario #6: What is the broadcast ID for 191.199.67.97 255.255.248.0?

A.191.199.64.255 255.255.248.0

>B.191.199.71.255 255.255.248.0

C.191.199.97.255.255.248.0

D.191.199.67.97 255.255.248.0

Scenario #7: how many hosts can 191.199.67.97/21 support?

A.2047

B.2048

>C.2046

D.2045

Scenario #8: What is the subnet mask and CIDR notation network that only needs 2 hosts per network?

A.255.255.255.253 and /30

B.255.255.255.252 and /21

C.255.255.255.254 and /31

>D.255.255.255.252 and /30