192.168.1.0/24   n = 4   class C   (1
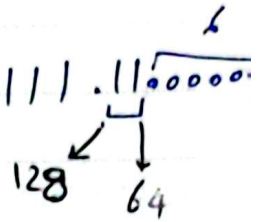
$2^n = 4 \Rightarrow n = 2$ 11111111.11111111.11111111.11000000

$24 + 2 = 26$ 192.168.1.0/26

255.255.255.192   128 ↓ 64

$2^n - 2 = 2^6 - 2 = 62$

192.168.1.0 — 192.168.1.63   → 192.168.1.192

192.168.1.64 — 192.168.1.127   192.168.1.255
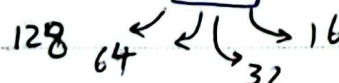
192.168.1.128 — 192.168.1.191

172.16.0.0/16 n = 16   class B   (2

11111111.11111111.00000000.00000000

$2^n = 16 \Rightarrow n = 4 \Rightarrow$ 172.16.0.0/20

$\Rightarrow$ 11111111.11111111.11110000.00000000   → 12

128 64 32 16

255.255.240.0 $2^n - 2 = 2^{12} - 2 = 4094$

172.16.0.1 — 172.16.15.254 — 172.16.15.255

172.16.16.0 — 172.16.16.1 — 172.16.31.254 — 172.16.31.255

172.16.32.0 — 172.16.32.1 — 172.16.47.254 — 172.16.47.255

172.16.48.0 — 172.16.48.1 — 172.16.63.254 — 172.16.63.255

172.16.64.0 — 172.16.64.1 — 172.16.79.254 — 172.16.79.255

10.0.0.0/8 n=64   Class A   (3

11111111.00000000.00000000.00000000

$$255.0.0.0$$

$2^n = 64 \Rightarrow n = 6 \Rightarrow$

11111111.111111$\overline{00.00000000.00000000}$ 18 $n = 18$

128 64 32 16 8 4

$$255.252.0.0$$

$$10.0.0.0/14$$

$2^n - 2 = 2^{18} - 2 = 262,142$

10.0.0.0 _ 10.0.0.1 _

192.168.10.0/24   n = 8   class C   (4

11111111.11111111.11111111.00000000

    255.255.255.0

$2^n = 8 \Rightarrow n = 3 \Rightarrow$ 128, 64, 32

11111111.11111111.11111111.11100000   192.168.10.0/27

    255.255.255.224   n = 5

$2^5 - 2 = 30$

192.168.10.0 — 192.168.10.31
192.168.10.32 — 192.168.10.63
192.168.10.64 — 192.168.10.95
192.168.10.96 — 192.168.10.127
192.168.10.128 — 192.168.10.159
192.168.10.160 — 192.168.10.191
192.168.10.192 — 192.168.10.223
172.168.10.224 — 172.168.10.225

172.31.0.0/16   n = 128   class B   (5

11111111.11111111.00000000.00000000

    255.255.0.0

$2^n = 128 \Rightarrow n = 7$ 9

11111111.11111111.11111110.00000000   n = 9

    255.255.254.0   9

172.31.0.0/25 $2^9 - 2 = 510$

172.31.0.0 _ 172.31.0.1 _172.31.1.254
172.31.1.255_ 172.31.2.1 _172.31.3.254
172.31.3.255 _ 172.31.4.1 _ 172.31.5.254
172.31.5.255 _ 172.31.6.1 _ 172.31.7.254
172.31.7.255_ 172.31.8.1 _ 172.31.9.254
172.31.9.255

10.10.0.0 /16 $n = 1000$ (6

11111111.11111111.00000000.00000000

255 . 255 . 0 . 0

$2^n \geq 1000 \Rightarrow$ $n = 10$

11111111.11111111.11111111.11$\underbrace{000000}_{n = 6}$

255 . 255 . 255 . 192

$2^6 - 2 = 62$

10.10.0.0 _ 10.10.0.1 _ 10.10.0.62_ 10.10.0.63
10.10.0.64 _10.10.0.65_ 10.10.0.127_ 10.10.0.128
10.10.0.129_ 10.10.0.190 _ 10.10.0.191 _10.10.0.192
10.10.0.193_ 10.10.0.254 _ 10.10.0.255_10.10.1.0
10.10.1.1 _ 10.10.1.62 _10.10.1.63

192.168.0.0/16 $n = 1024$ (7

11111111.11111111.00000000.00000000

255 . 255 . 0 . 0

$2^n = 1024 \Rightarrow n = 10$

11111111 . 11111111 . 11111111 . 11 000000

255 . 255 . 255 . 192

$$2^6 - 2 = 62$$

192.168.0.0 _ 192.168.0.63
192.168.0.64 _ 192.168.0.127
192.168.0.128 _ 192.168.0.191
192.168.0.192 _ 192.168.0.255
192.168.1.0 _ 192.168.1.63
192.168.1.64 _ 19 .168.1.127 ___