

Class A N.H.H.H

Class B N.N.H.H

Class C N.N.N.H

7 Departments 7 LANs ~300 Hosts/Dep

148.37.0.0 ---> 1 Network 2¹⁶ 65536 Hosts -2 65

Need: 7 Network IDs, 300 Host IDs

Subnetting:

10010100.00100101.00000000.00000000	-	148.37.0.0
10010100.00100101.00010000.00000000	-	148.37.16.0
10010100.00100101.00100000.00000000	-	148.37.32.0
10010100.00100101.00110000.00000000	-	148.37.48.0
10010100.00100101.01000000.00000000	-	148.37.64.0
10010100.00100101.01010000.00000000	-	148.37.80.0
10010100.00100101.01100000.00000000	-	148.37.96.0

10010100.00100101.01110000.00000000	-	148.37.112.0
10010100.00100101.10000000.00000000	-	148.37.128.0
10010100.00100101.10010000.00000000	-	148.37.144.0
10010100.00100101.10100000.00000000	-	148.37.160.0
10010100.00100101.10110000.00000000	-	148.37.176.0
10010100.00100101.11000000.00000000	-	148.37.192.0
10010100.00100101.11010000.00000000	-	148.37.208.0
10010100.00100101.11100000.00000000	-	148.37.224.0
10010100.00100101.11110000.00000000	-	148.37.240.0

LAN-1

```
10010100.00100101.00010000.00000000 - 148.37.16.0 loopback
10010100.00100101.00010000.00000001 - 148.37.16.1
10010100.00100101.00010000.00000010 - 148.37.16.2
10010100.00100101.00010000.00000011 - 148.37.16.3
10010100.00100101.00010000.00000100 - 148.37.16.4
.
.
10010100.00100101.00010000.11111111 - 148.37.16.255
10010100.00100101.00010001.00000001 - 148.37.17.0
10010100.00100101.00010001.00000010 - 148.37.17.1
10010100.00100101.00010001.00000011 - 148.37.17.2
10010100.00100101.00010001.00000100 - 148.37.17.3
.
.
10010100.00100101.00010001.00101110 - 148.37.17.46
10010100.00100101.00011111.11111111-148.37.31.255 broadcast
```

LAN-2

10010100.00100101.00100000.00000000 - 148.37.32.0 1/b

10010100.00100101.00100000.00000001 - 148.37.32.1

10010100.00100101.00100000.00000011 - 148.37.32.2

10010100.00100101.00101111.11111111 - 148.37.47.255 b/c

148.37.56.25 - 255.255.240.0

Subnet Mask

11111111.11111111.11110000.00000000

10010100.00100101.00111000.00011001 148.37.56.25

11111111.11111111.11110000.00000000 255.255.240.0

----- Logical AND

10010100.00100101.00110000.00000000 148.37.48.0

CIDR - Classless Inter-Domain Routing

148.37.56.25 /20

5.5.4.12 /23 5.5.4.12 - 255.255.254.0

11111111.11111111.11111110.00000000 255.255.254.0

T T : T
T F : F
F T : F
F F : F

128 64 32 16 8 4 2 1
0 0 0 0 0 0 0 0

1 0 1 1 0 0 1 1
128+0+ 32 + 16+ 0 + 0 + 2 + 1 = 179

$226 - 128 = 98 - 64 = 34 - 32 = 2 - 2 = 0$

11100010