CA ~~(0-127)~~ — (1-126)

CB (128-191)

CC (192-223)

CD (224-239)

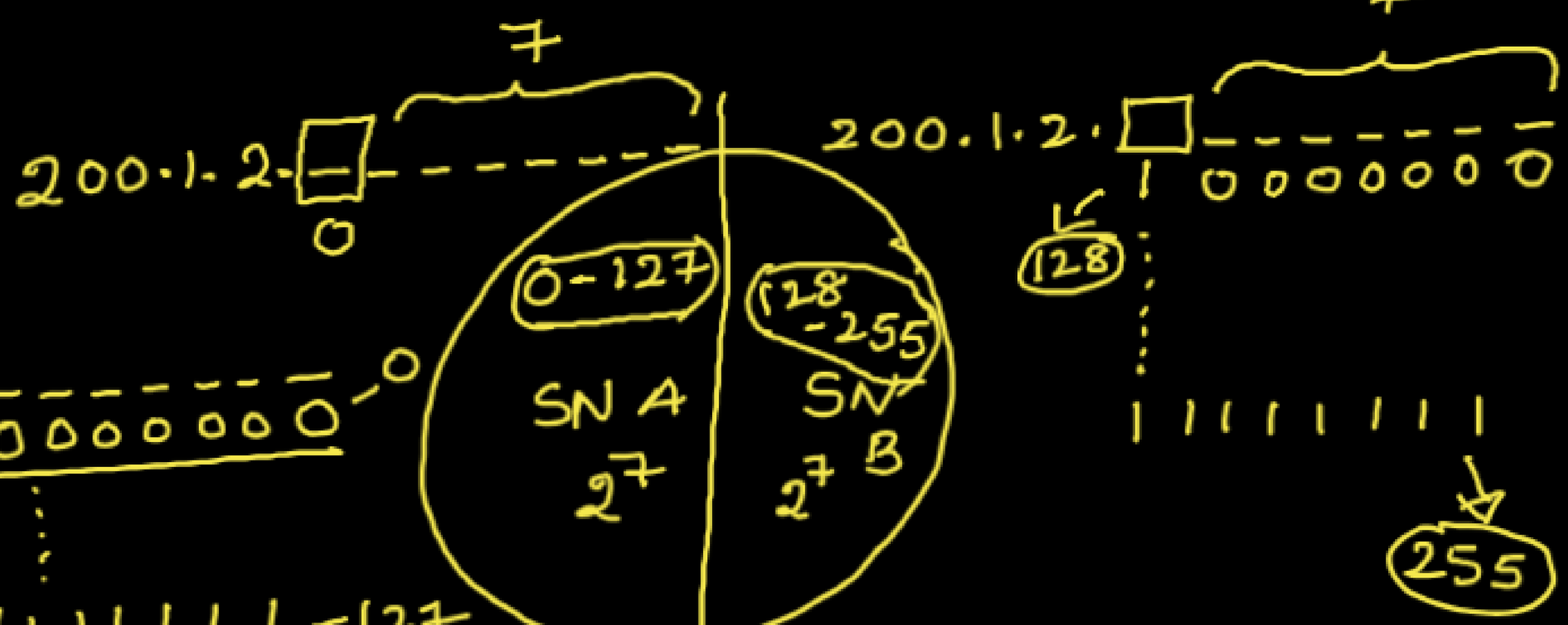
CE (240-255)

0-255 Subnet (2 marks)

200.1.2.0 - CC

NID HID

HID = 8 bits = 2^8 IP add



Range

200.1.2.0 - 00000000 - 0

0 1 1 1 1 1 1 1 - 127

NID & SID → A : 200.1.2.0

DBA & SA: 200.1.2.127

NID & SB : 200.1.2.128

~~NID~~ & SB : 200.1.2.255

DBA

NID & SID & BID = IP
DBA of any N/W = last IP

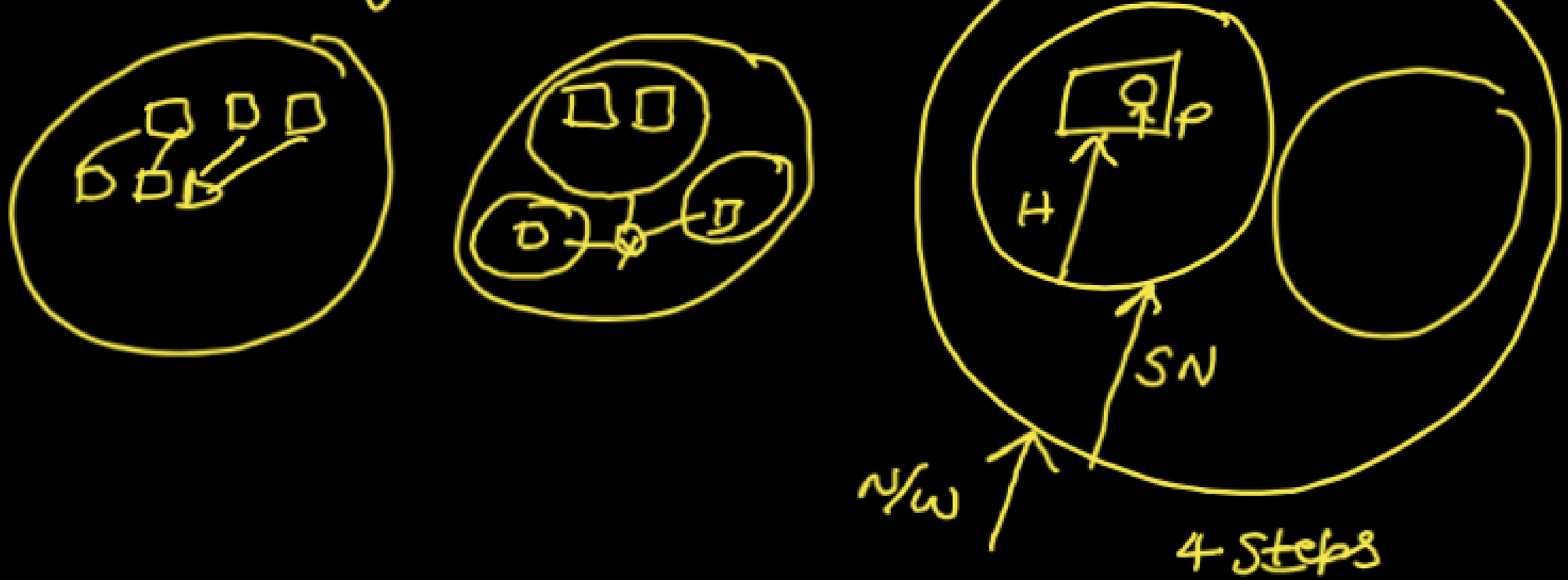
NA X

CA → $2^{24} \cong 16$ M

Why Subnetting :

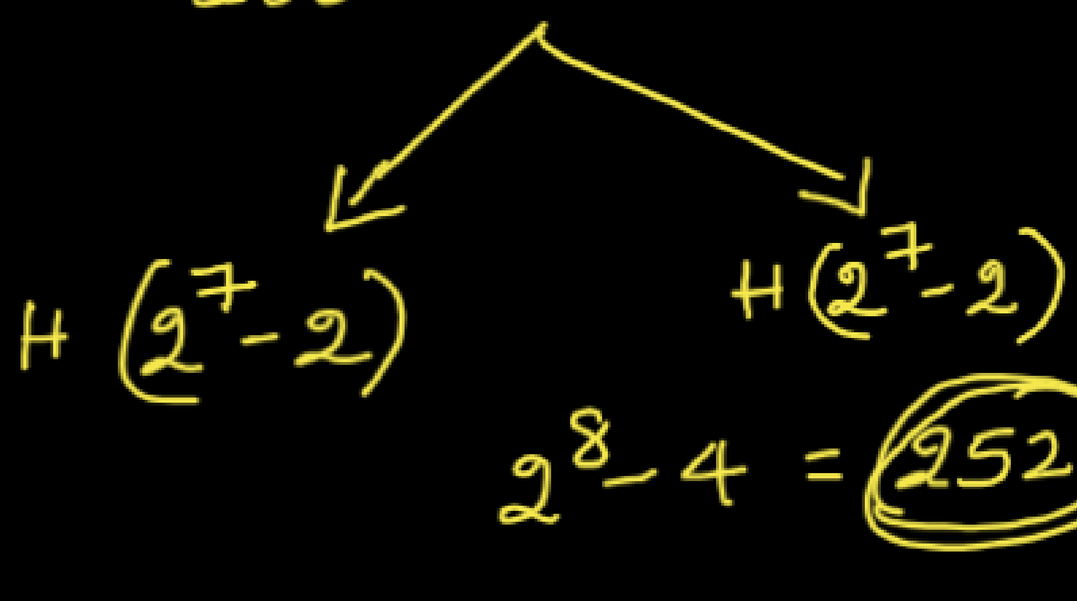
→ Maintenance easy

→ Security

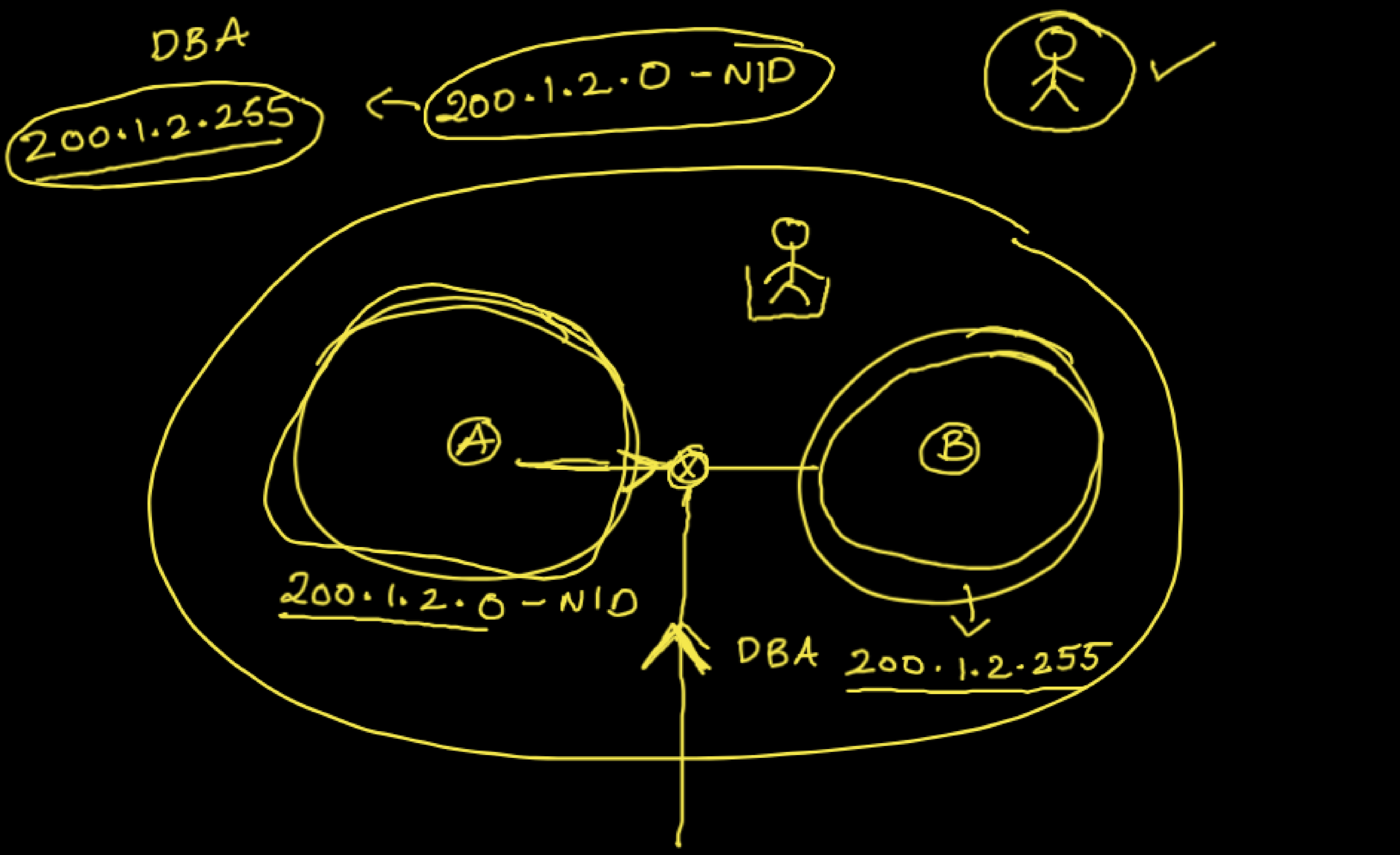


Coverage of IPs

200.1.2.0 → Hosts $2^8 - 2 = 254$

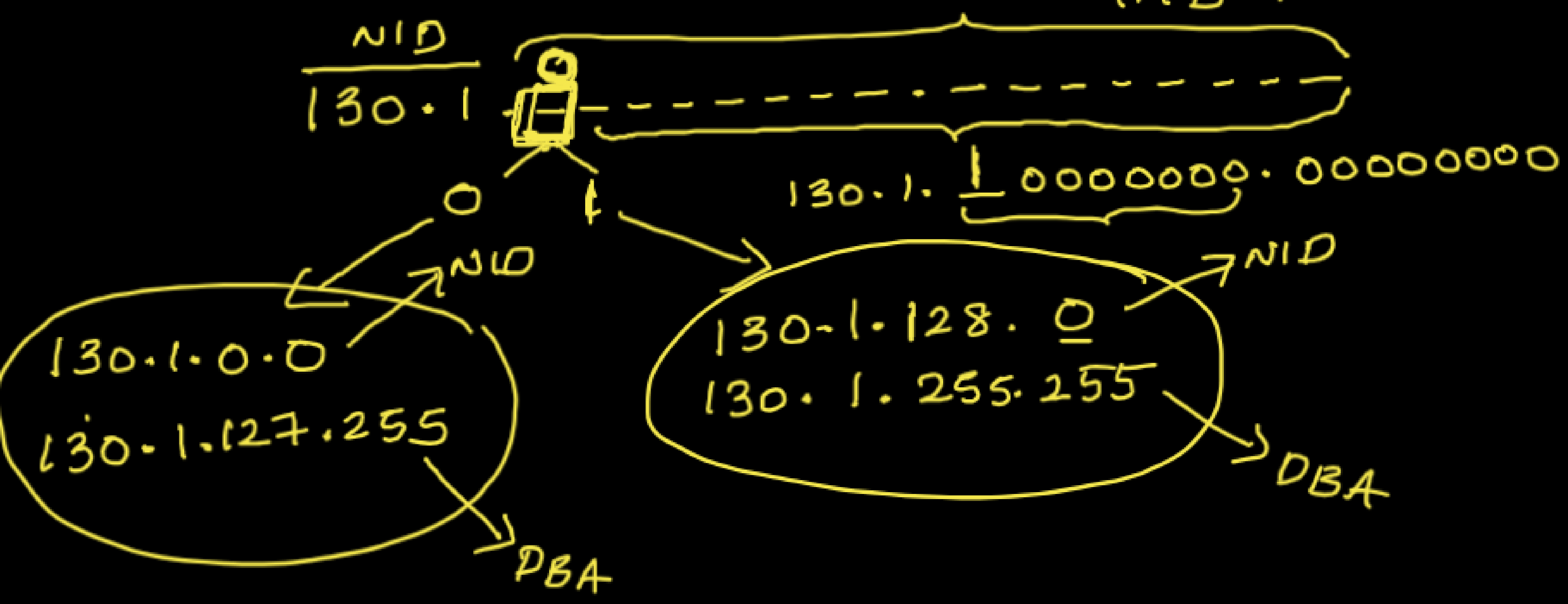


$2^8 - 4 = 252$ Hosts


DBA
200.1.2.255
200.1.2.0 - NID
A
B
200.1.2.0 - NID
DBA
200.1.2.255

Network 130.1.0.0 -CB

Size - IP add - 2^{16} → S1 - 2^{15}, S2 2^{15}



130.1.1 11111111.11111111

100.0.0.0 – CA

I SN:

✓ 100.0.0.0

100.127.255.255

II SN:

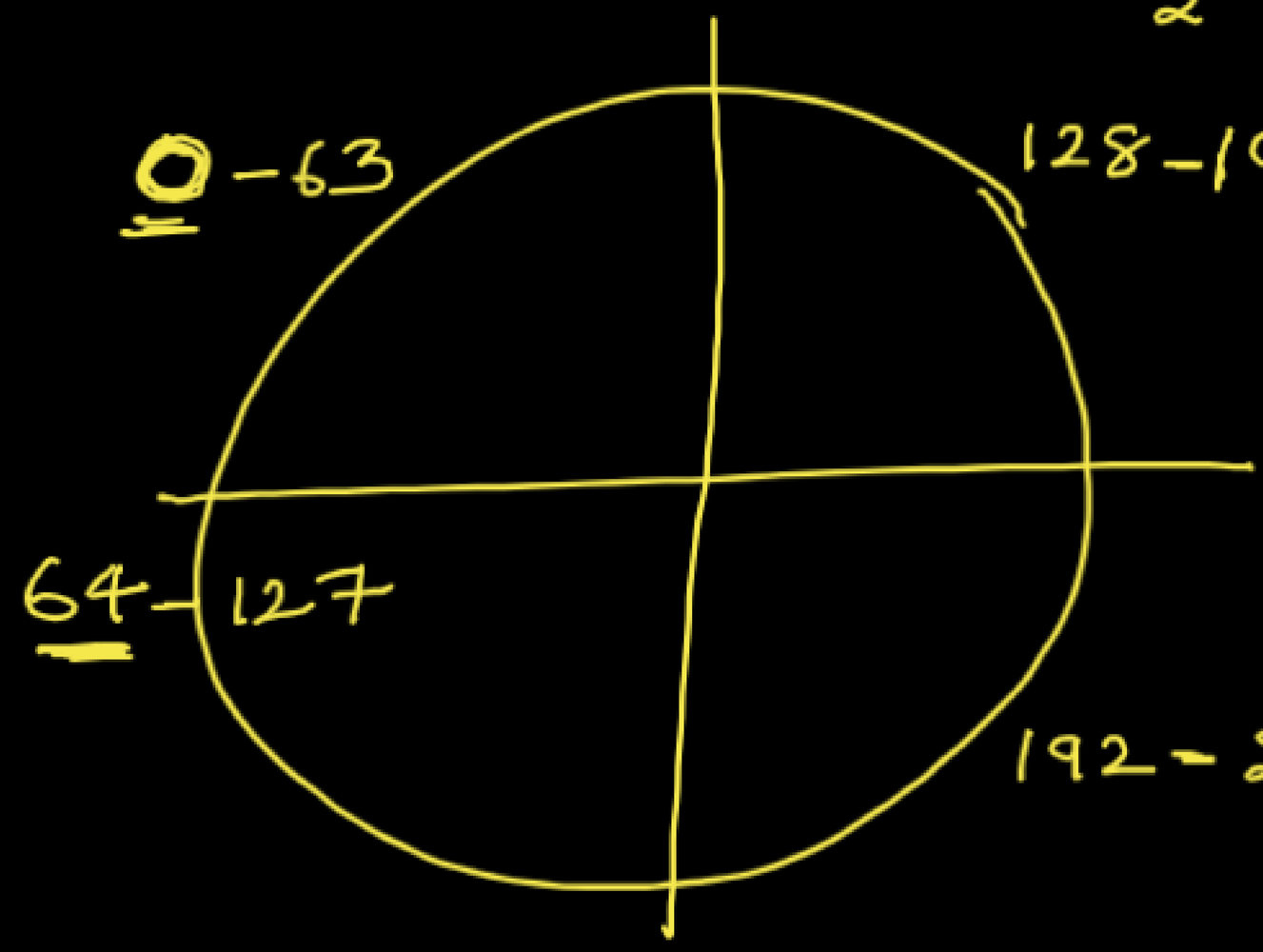
100.128.0.0

100.255.255.255

200.1.2.0

200.1.2.[ ][ ]------

2^7 2^6



128	64
0	0
0	1
1	0
1	1

200.1.2.0 → 8 n/ws

200.1.2.- - - - - - - - -

128 64 32

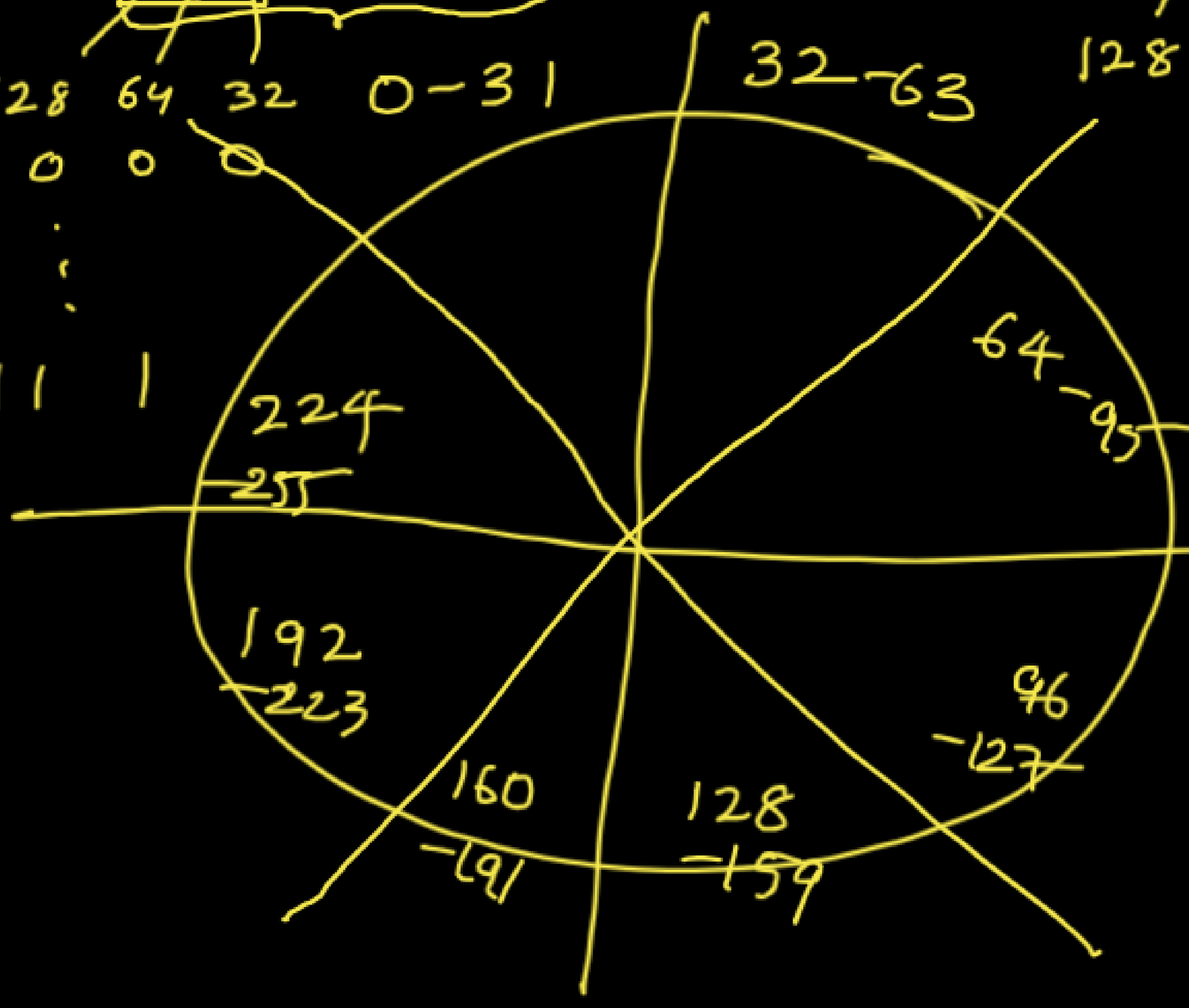
200.1.2.- - - - - - - - -

128 64 32

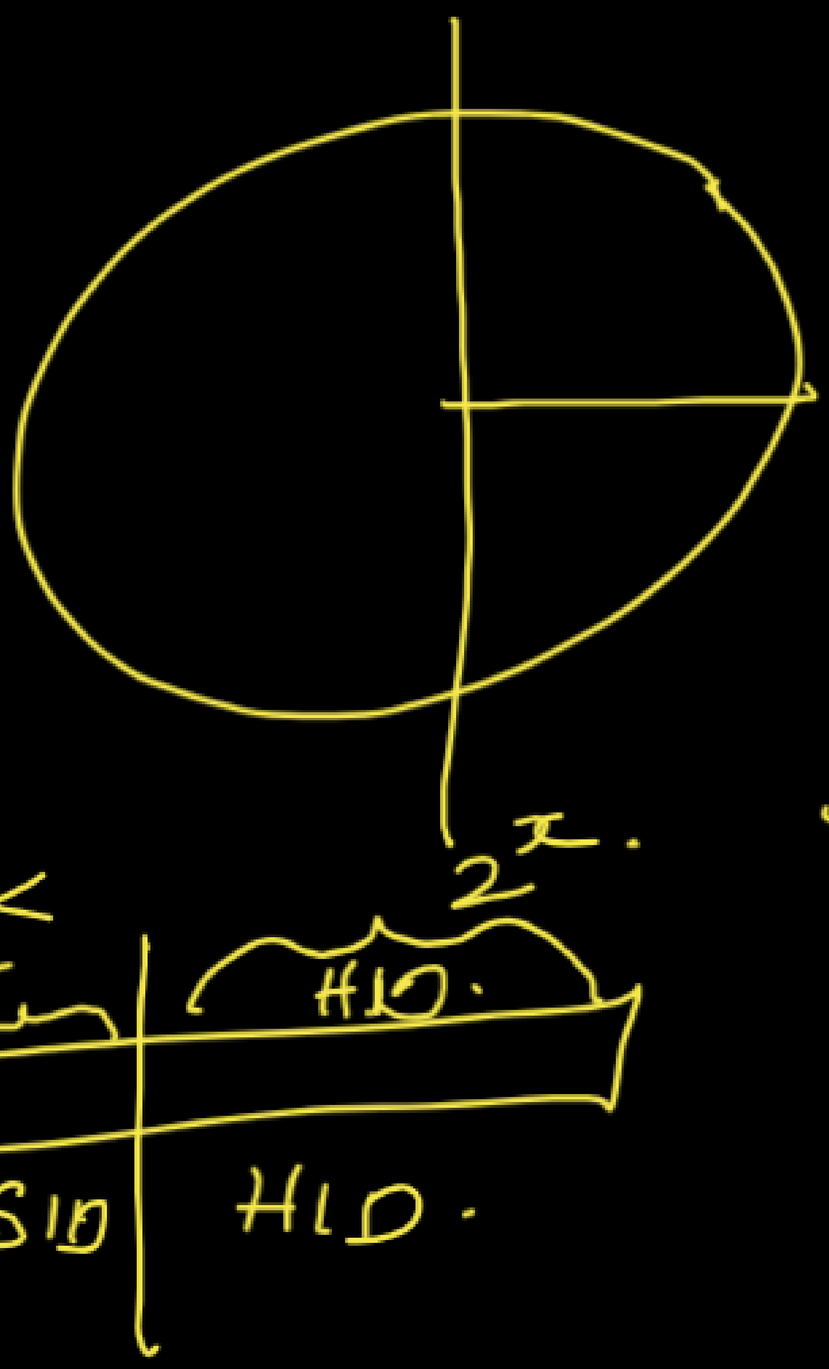
0 0 0

⋮

1 1 1

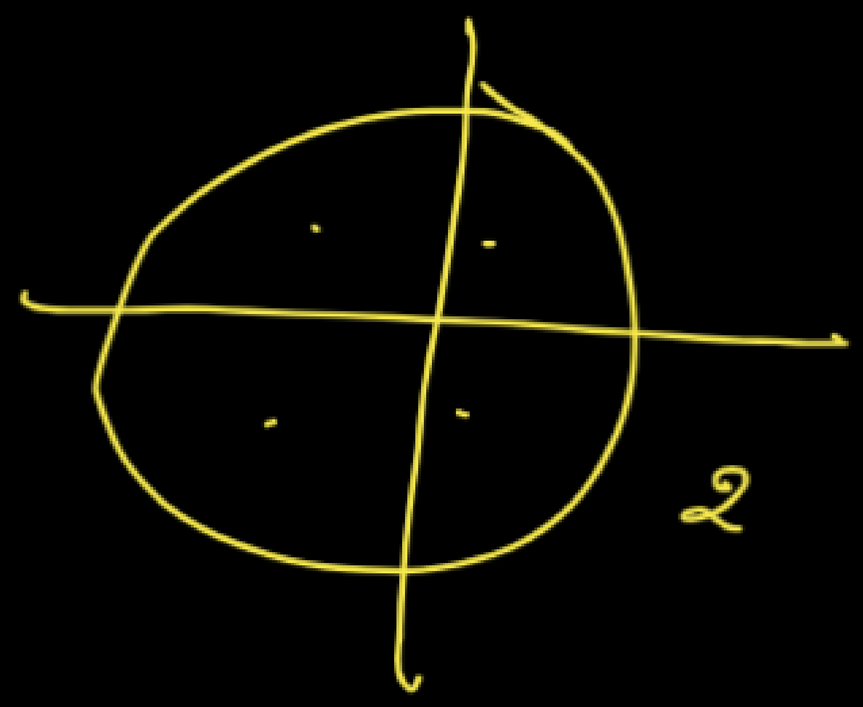


128	64	32
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0
1	0	1
1	1	0
1	1	1



$2^7\ 2^6\ 2^5\ 2^4\ 2^3\ 2^2\ 2^1\ 2^0$

3 Students.



130.1.0.0

(4) → 2

(8) → (3)

130.1.

128 64

0 0

0 1

1 0

1 1

130.1.0.0

130.1.63.255

130.1.64.0

130.1.127.255

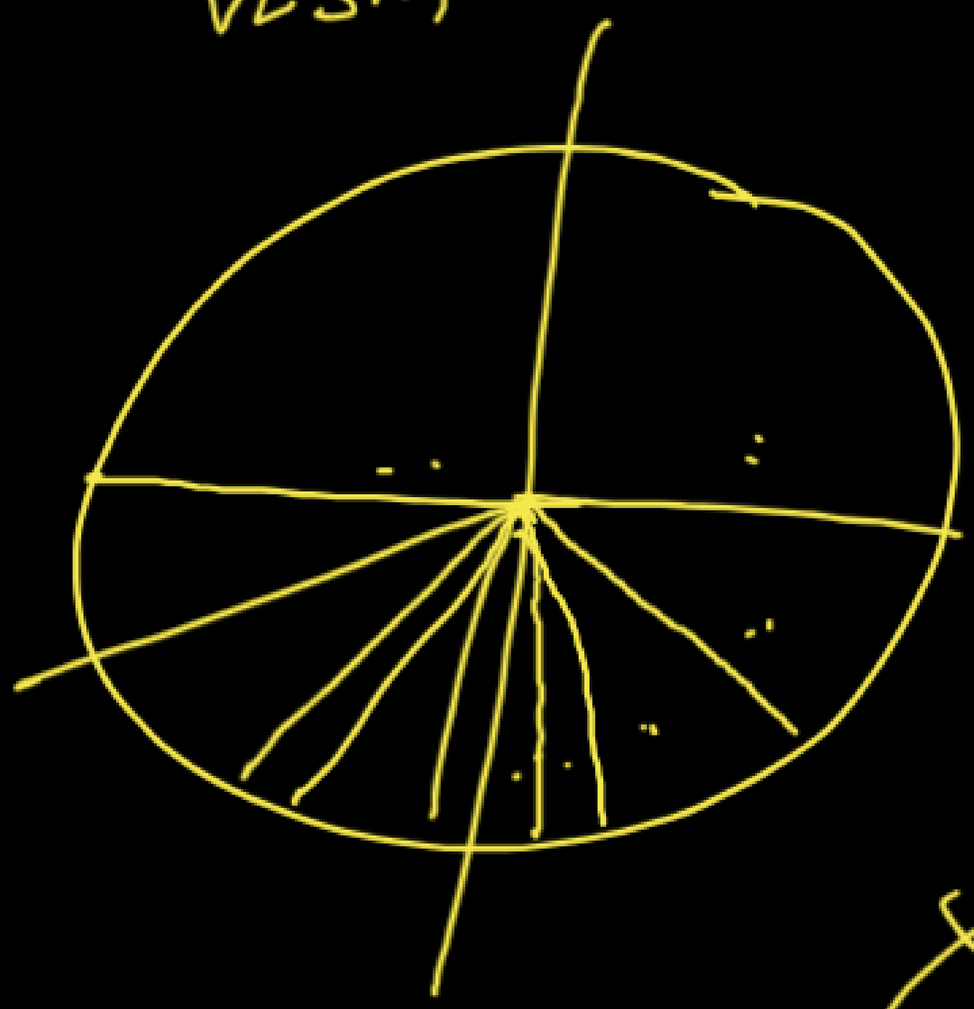
130.1.128.0

130.1.191.255

130.1.192.0

130.1.255.255

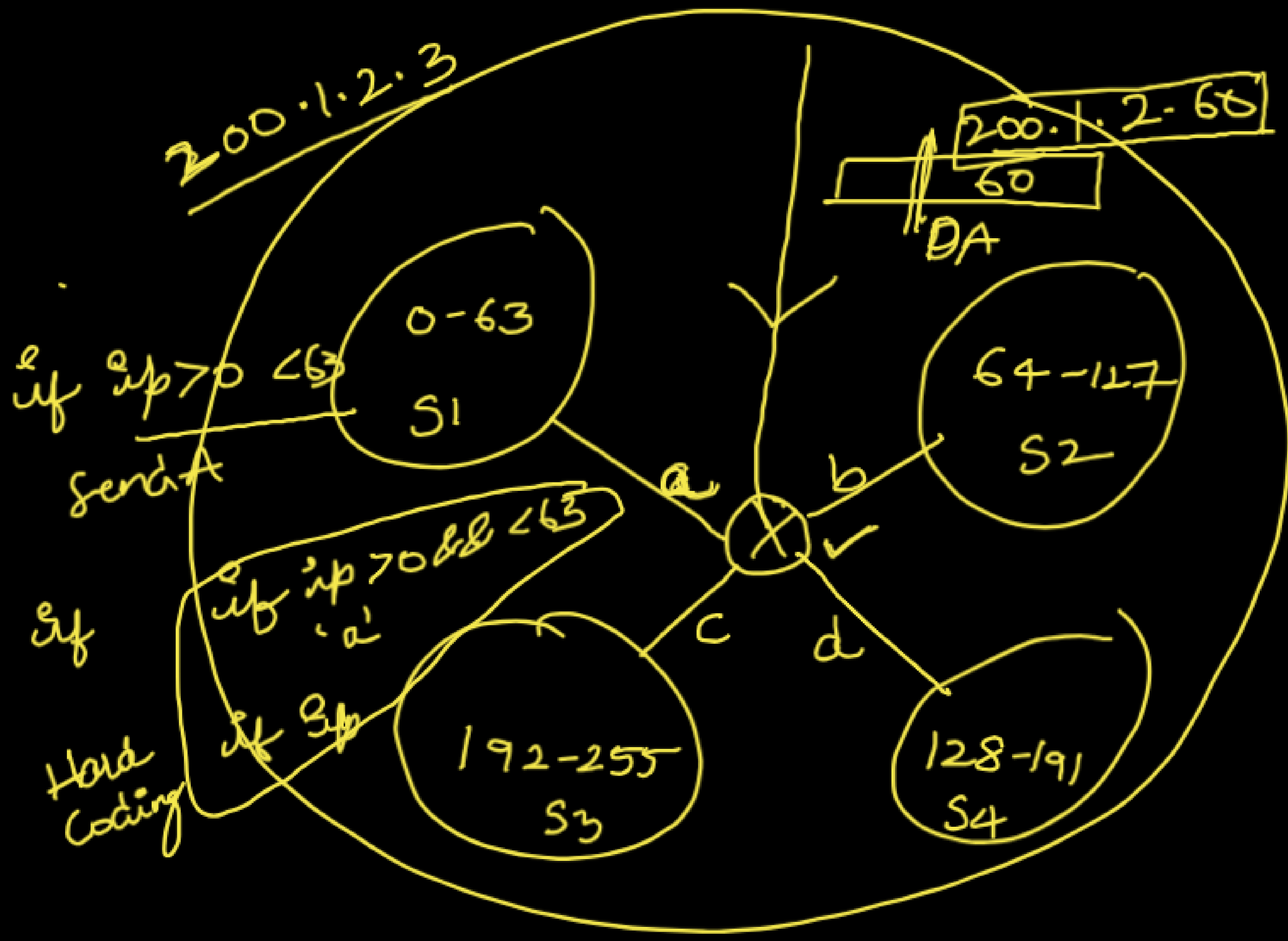
VLSM

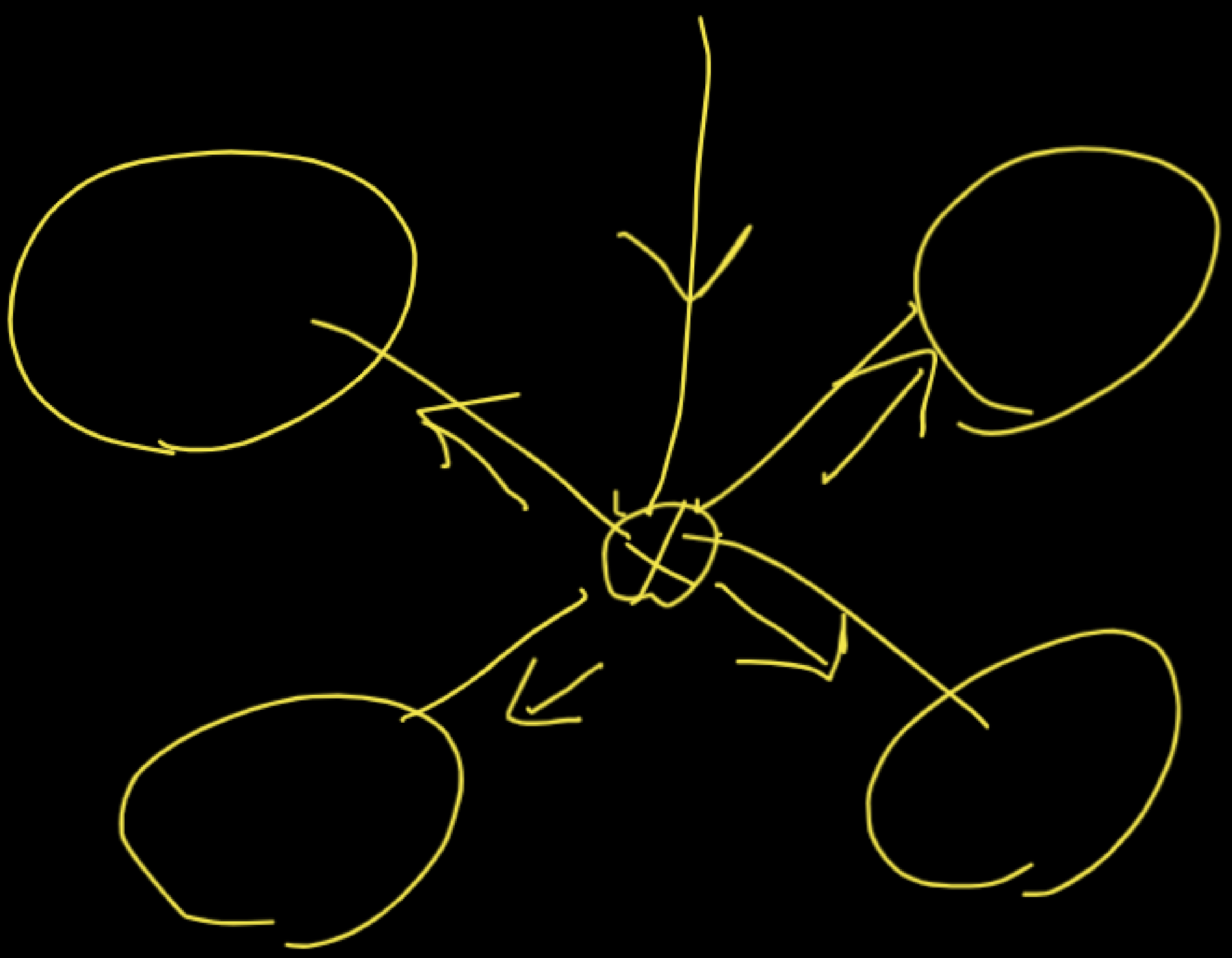


3 parts

5 parts

6 parts


200.1.2.3
200.1.2.60
60
DA
0-63
S1
64-127
S2
192-255
S3
128-191
S4
a
b
c
d
if ip70 <63
send A
if ip70 && <63
if
'a'
if
Hard coding



Subnet mask:

5 min Break.

8:04 - 8:10

TOC

OS

CD

CN

DB

Algo

DS

Aptitude ✗

CN → most difficult.

Hand written notes → upload tomorrow

improve →

Subnet mask: 32 bit number

(1's) → NID + SID

0's → HID

CA: 8 bits → NID

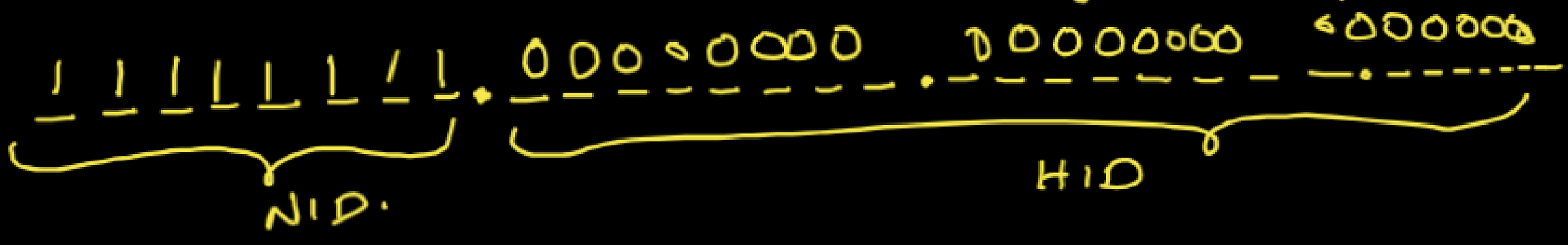
24 bits → HID

No Subnetting — SID = 0

255.0.0.0

Default Sm for CA

Then Sm: ?



Default SM for CB →

255.255.0.0.

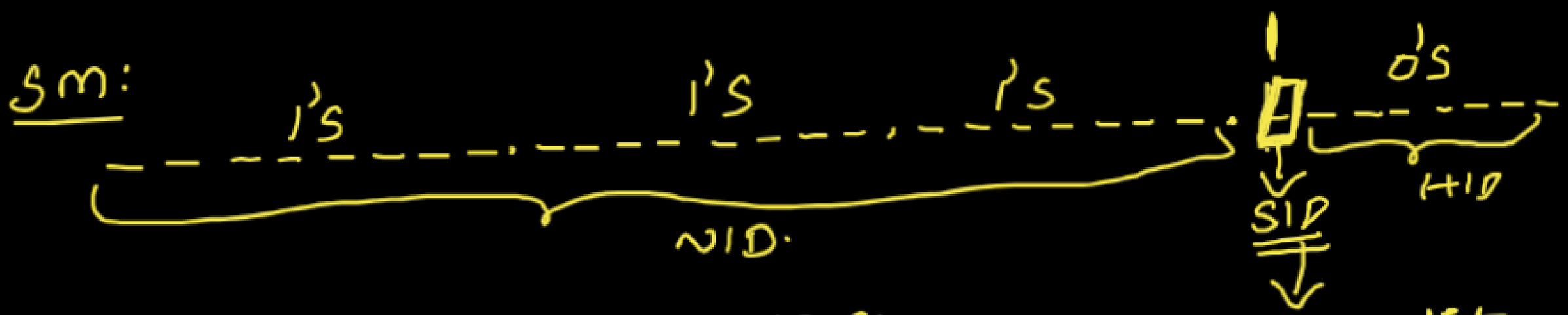
Default SM for CC

255.255.255.0

SM of CD → ? X NID x HID:

SM of CE → ? X

200.1.2.0 → CC → 2 SNS



255.255.255.128

200.1.2.10 ✓

255.255.255.128 ✓

200.1.2.0 BA

200.1.2.0

SM = 255.255.255.128

IP

SM

SID & NID

200.1.2.0 ✓

200.1.2.1-8

0-127 ✓

128-255 ✓

200.1.2.127

200.1.2.255

10000000

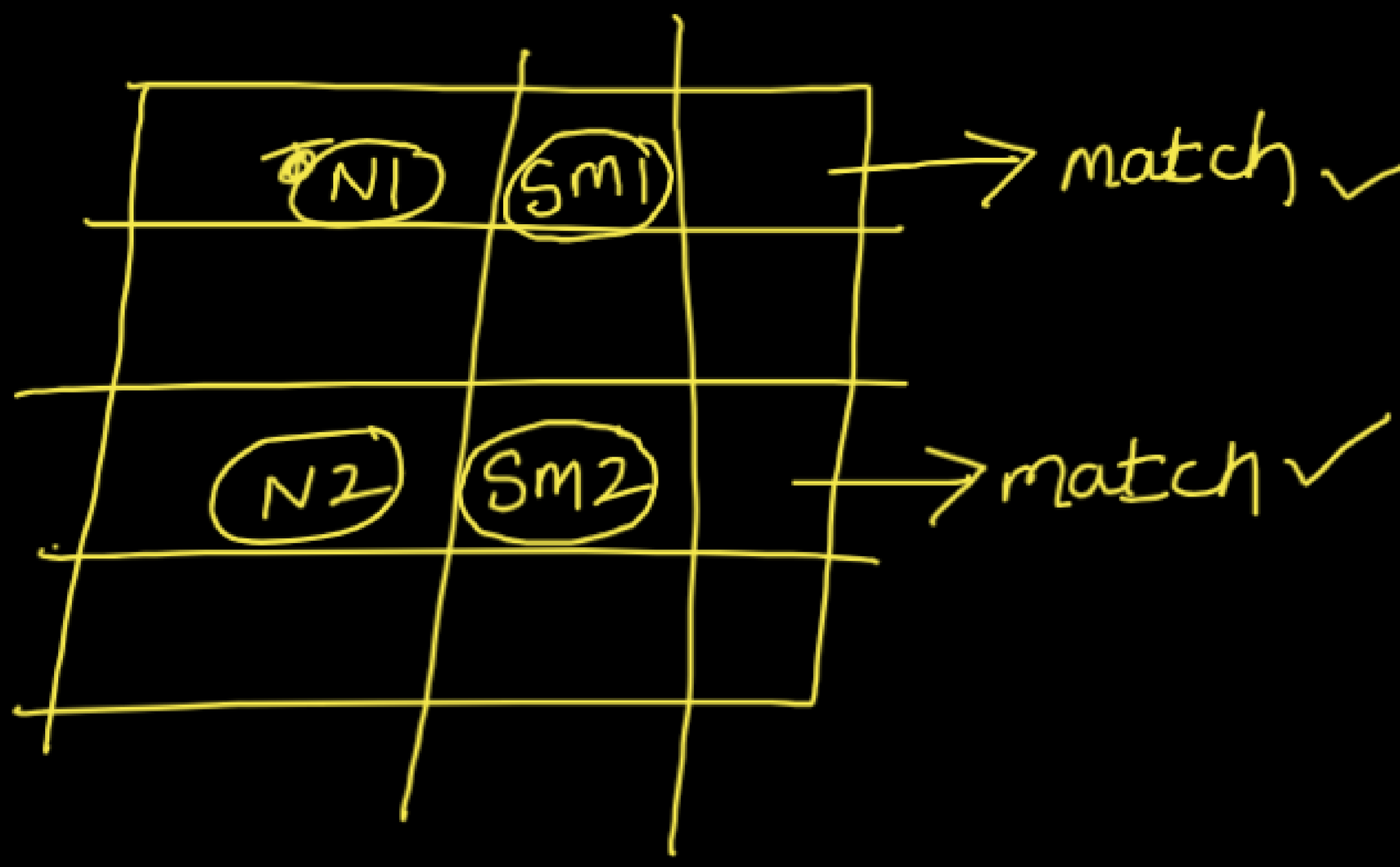
00001010

00000000

I → DIP
sm
NID

Routing table at I :

NID	sm	Interface
200.1.2.0	255.255.255.128	a - eth0
200.1.2.128	255.255.255.128	b - eth1
0.0.0.0	0.0.0.0	Default



(1's in sm1) ≡ (1's in sm2)

greater picked

VLSM → variable length subnet masking

Same → SM

200.1.2.

0

0 - 127

A

SIO = 1

SM ←

= 255.255.255.128

1 0

128 - 191

B

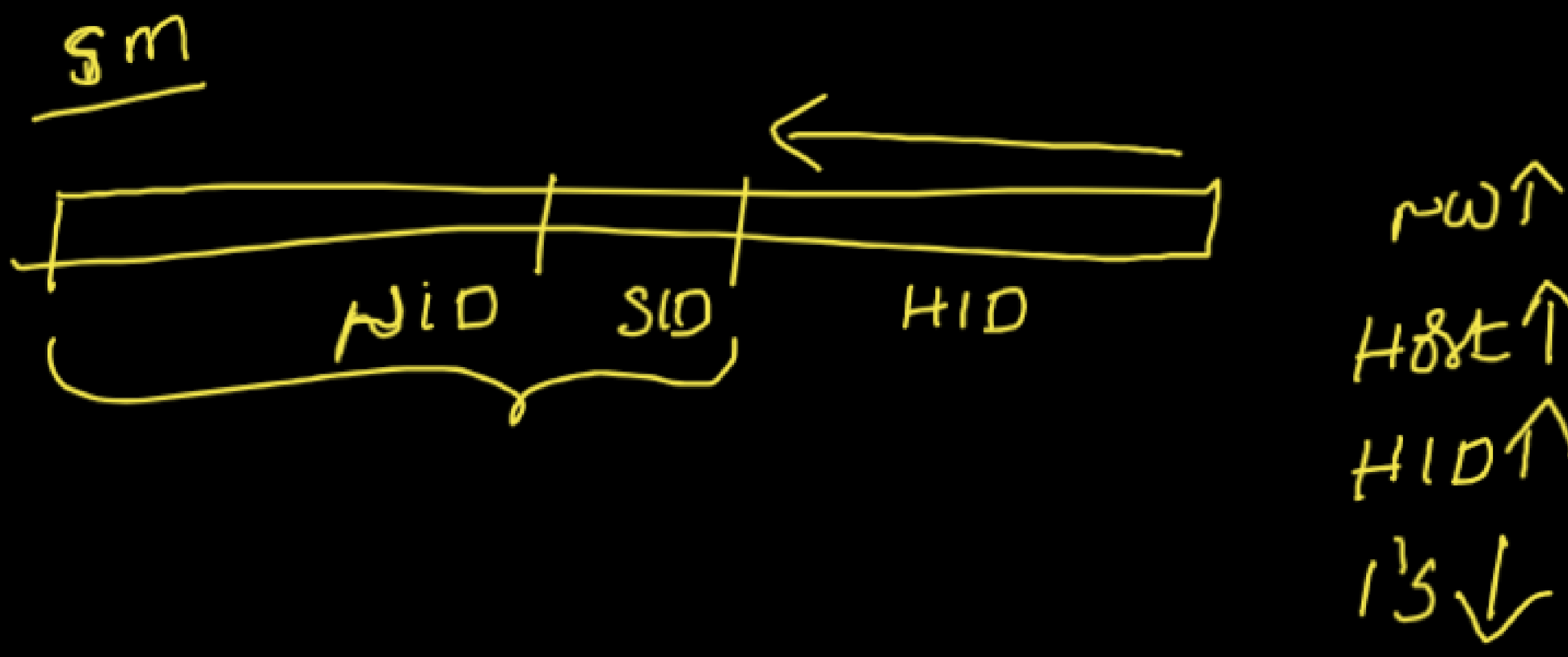
SIO = 2 → 255.255.255.192

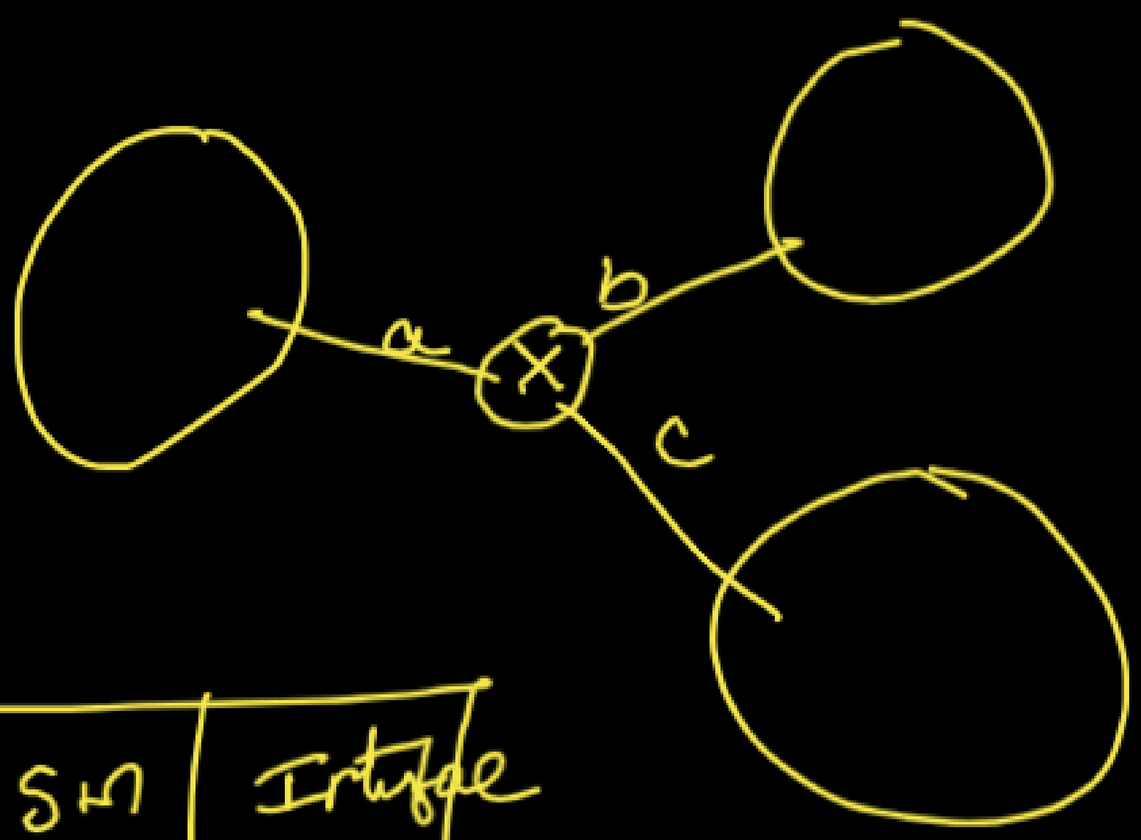
1 1

192 - 255

C

SIO = 2 → 255.255.255.192


sm
NiD
SiD
HiD
nw↑
H8t↑
HiD↑
13



NID	SM	Interface
N	SM	a
N	SM	b
N	SM	c

10000000 — 128
11000000 — 192
11100000 — 224
11110000 — 240
11111000 — 248
11111100 — 252
11111110 — 254
11111111 — 255

✓

100.1.2.3 /8

Sm: 255.255.0.0

NID = 8 bits

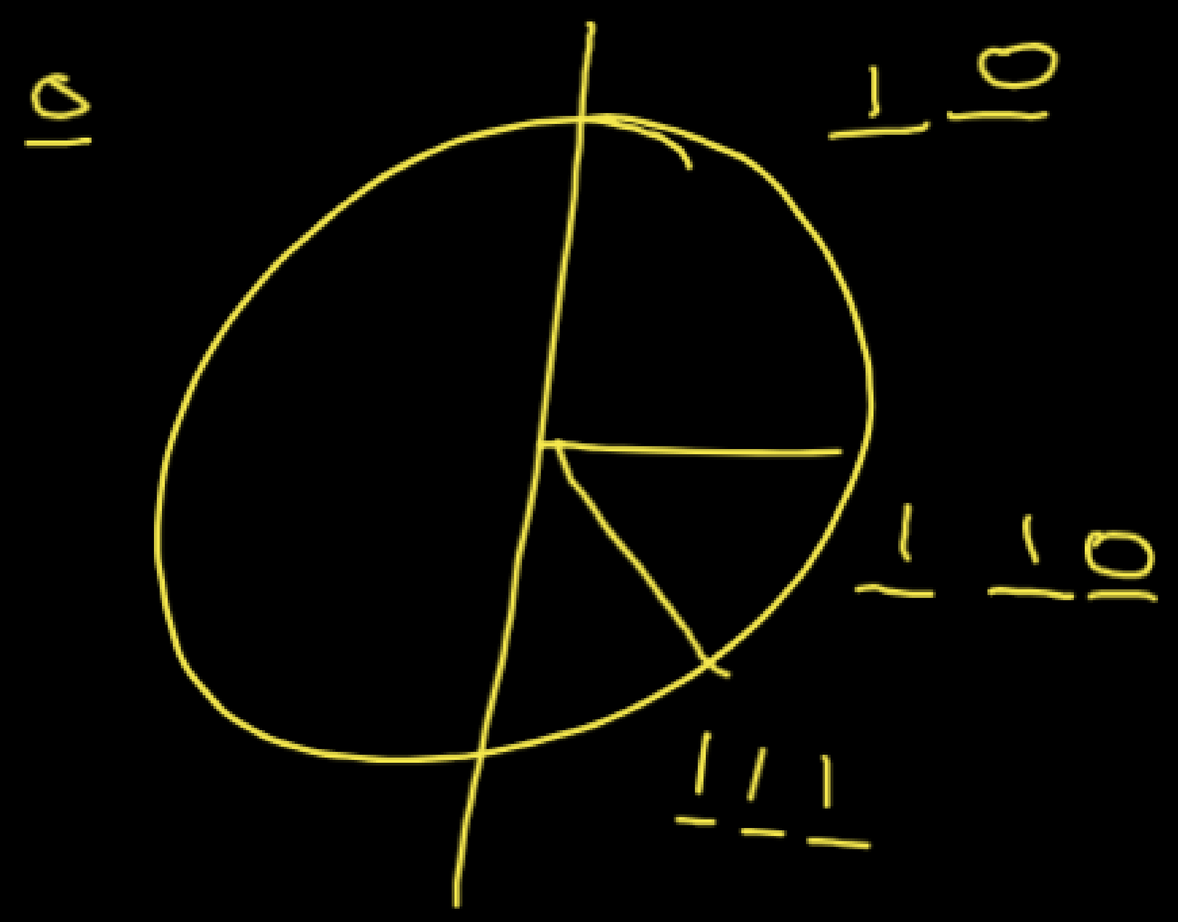
1's Sm = 16

16 = NID + ~~HID~~ SID

16 = 8 + SID

SID = 8

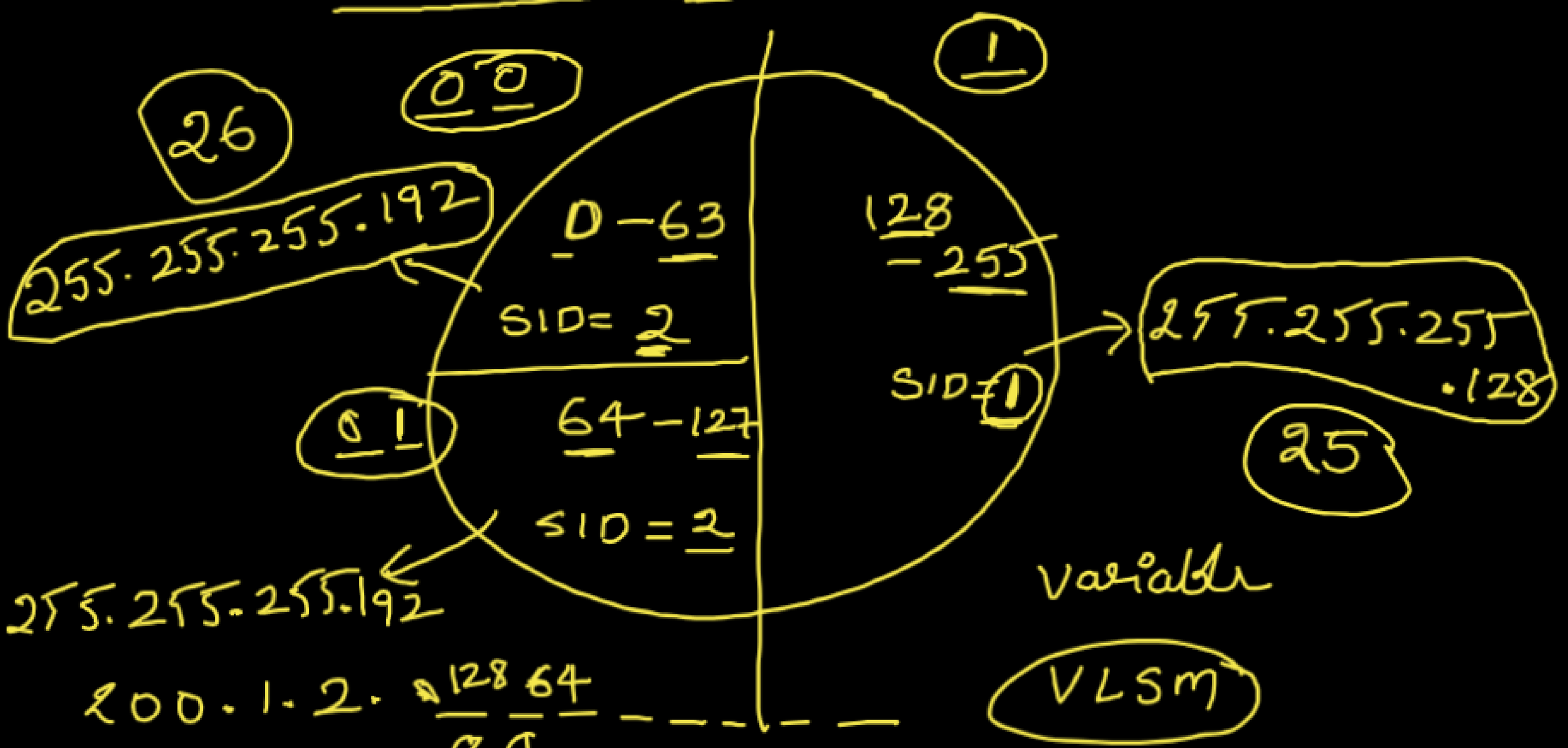
SN = 2^8 = 256



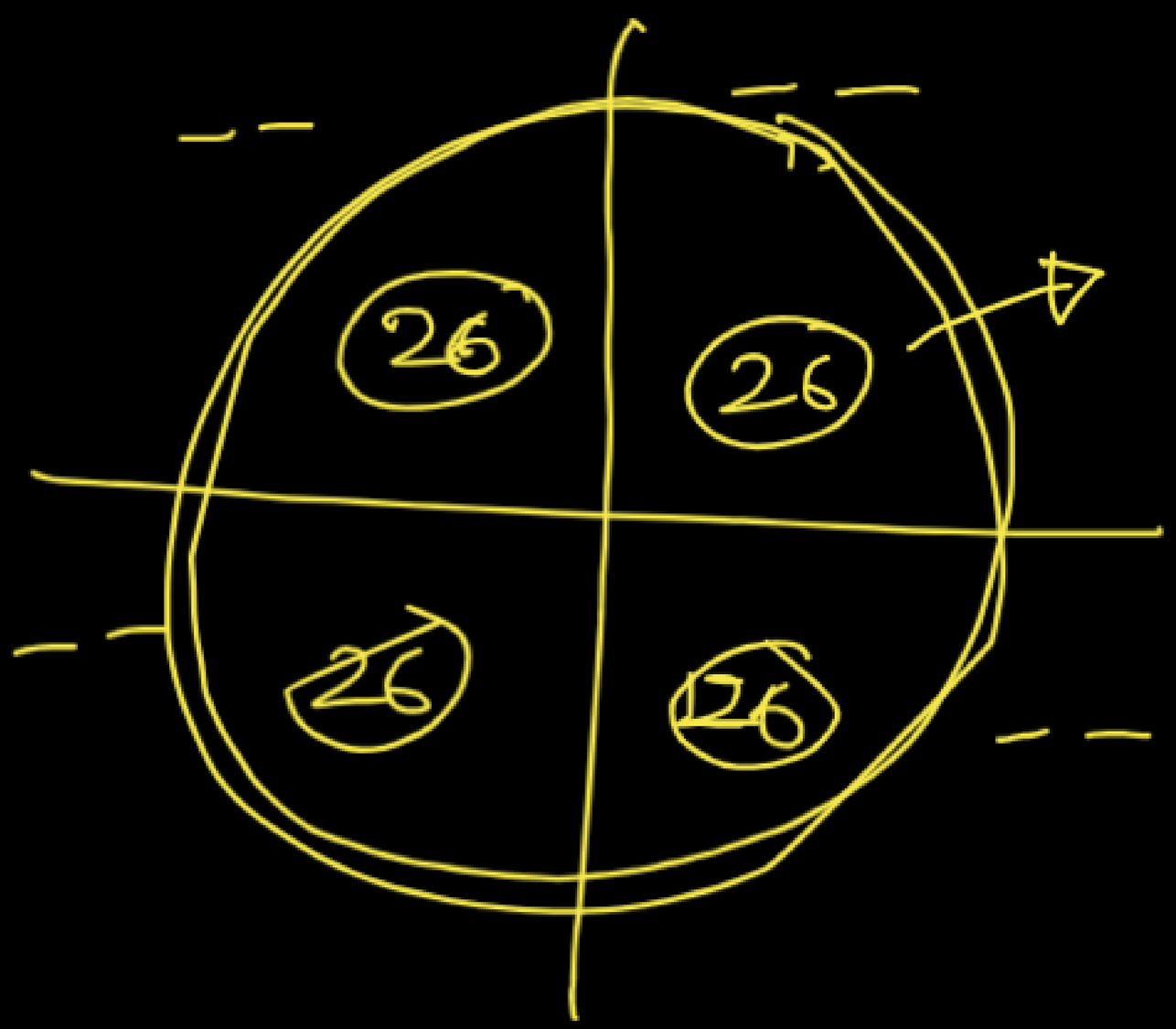
VLSM → N/W Sizes different

↓

Sm Sizes are Diff


200.1.2.0
0 0
26
255.255.255.192
0-63
SID= 2
0 1
64-127
SID=1
1
128
-255
255.255.255
.128
25
Variable
VLSM
255.255.255.192
200.1.2.
128 64
0 0
0 1
1

200.120.0



NID = 24

SID = 2

1's = 26.

FLSM

1/2 ⇒ 1/4 3bouts