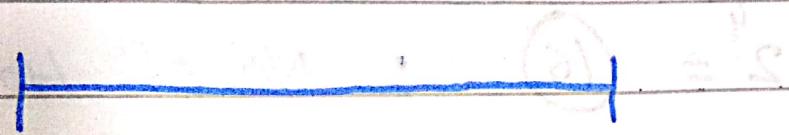


## Problems with Classfull Addressing:

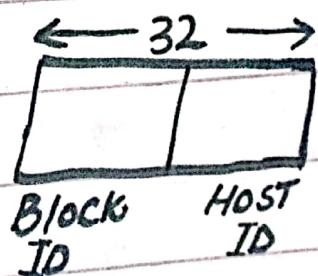
- Wastage of IP addresses
- Maintenance is time consuming



## Classless Addressing:- (1993)

The concept of classless addressing in 1993. After the concept of classful addressing

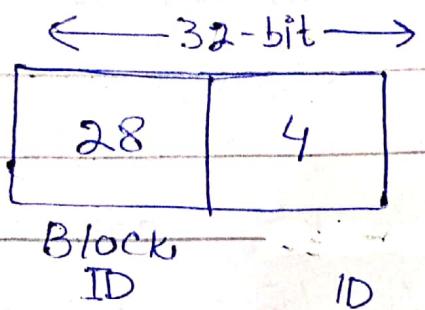
- No classes
- only blocks



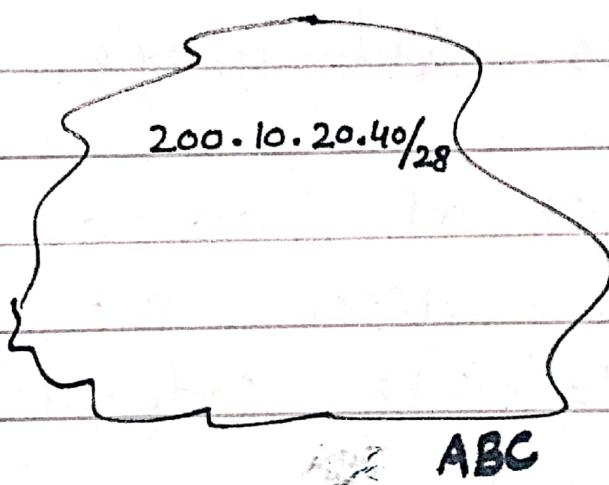
- Notation

$x.y.z.w/n$  → mask  
no. of bits represent block/network

200.10.20.40/28



$$2^4 = \textcircled{16} : \text{No. of Host}$$



1111111.111111.111111.1110000

255.255.255.240

Mask

200.10.20.40/28

This IP Address Belongs to  
which Network.

200. 10. 20. 40 /28

200. 10. 20. 00101000  
28-bit

255. 255. 255. 240

200. 10. 20. 40

200. 10. 20. 32

200. 10. 20. 32 /28

Network

## Rules for Classless Addressing

- Addresses should be contiguous.
- No. of addresses in a block must be in Power of  $2^k$ .
- First address of every block must be evenly divisible with size of block.

## Variable length subnet Masking in CIDR:

Question:

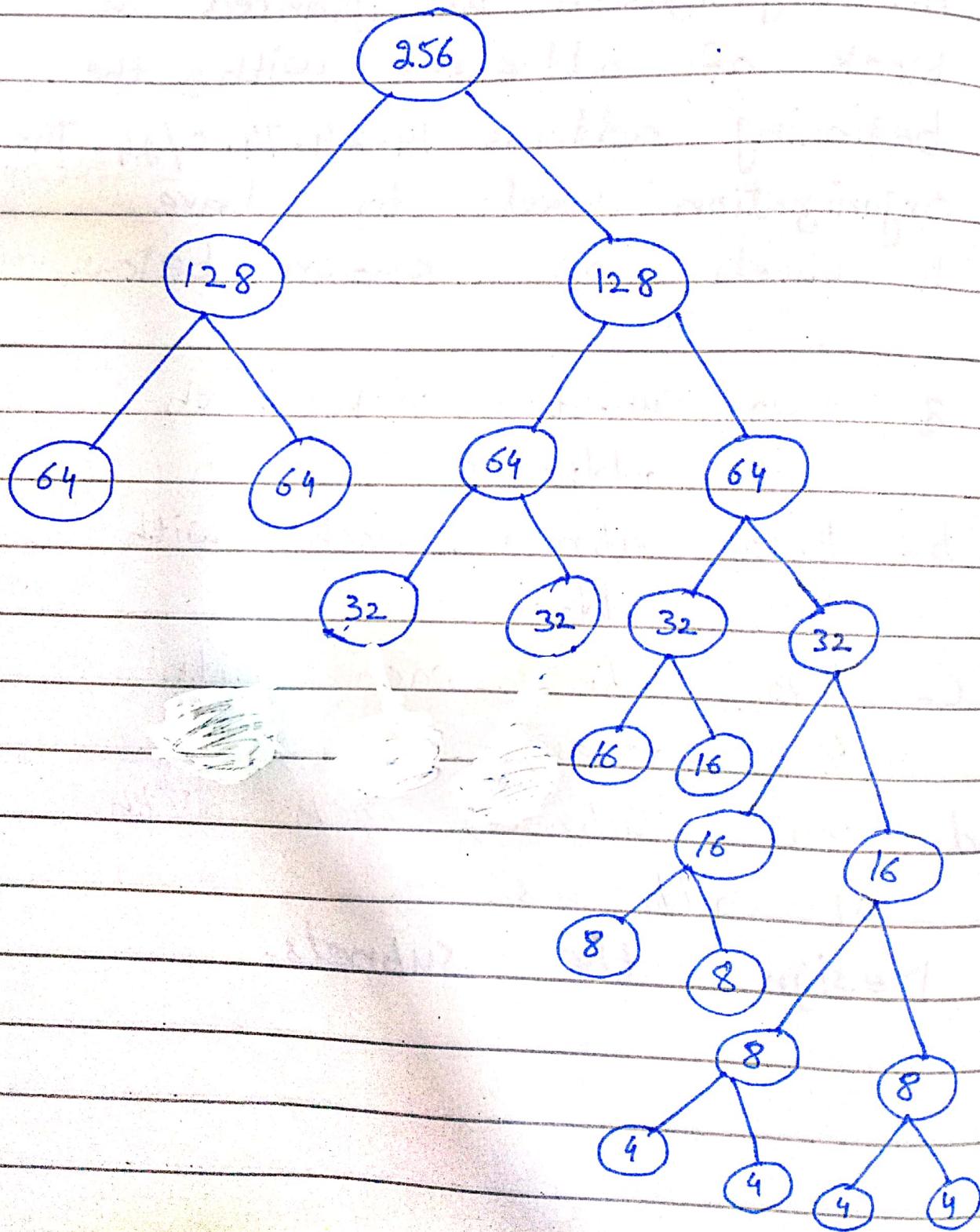
An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 11 subnets as shown below.

- a. two subnets, each with 64 addresses.
- b. two subnets, each with 32 addresses
- c. two subnets, each with 16 addresses.
- d. four subnets, each with 4 addresses.

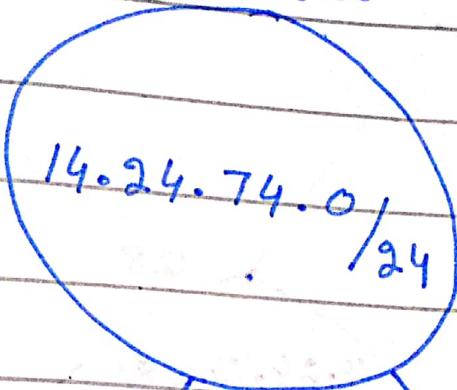
Design the subnets.

14. 24. 74. 0 / 24

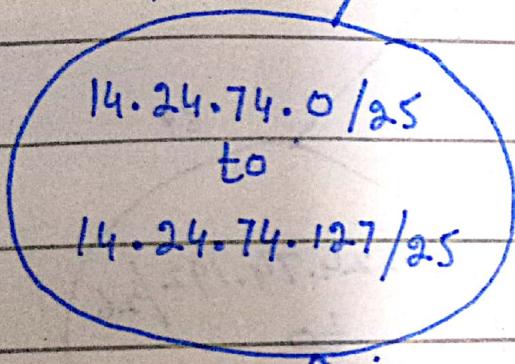
Total = 256 (0 - 255)



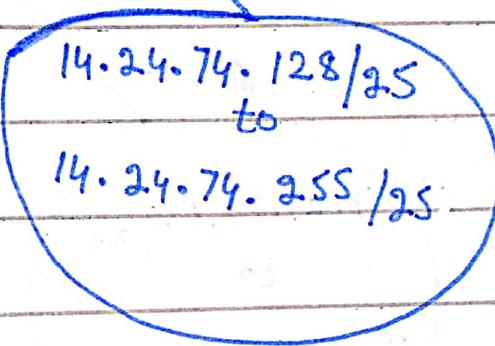
256



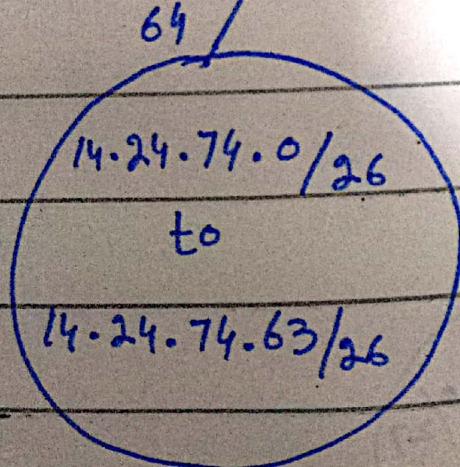
128



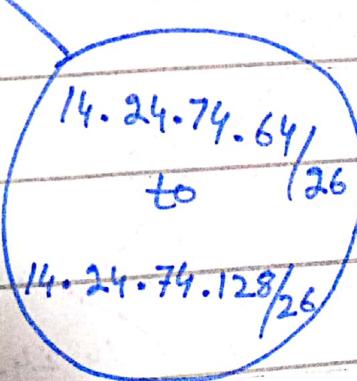
128

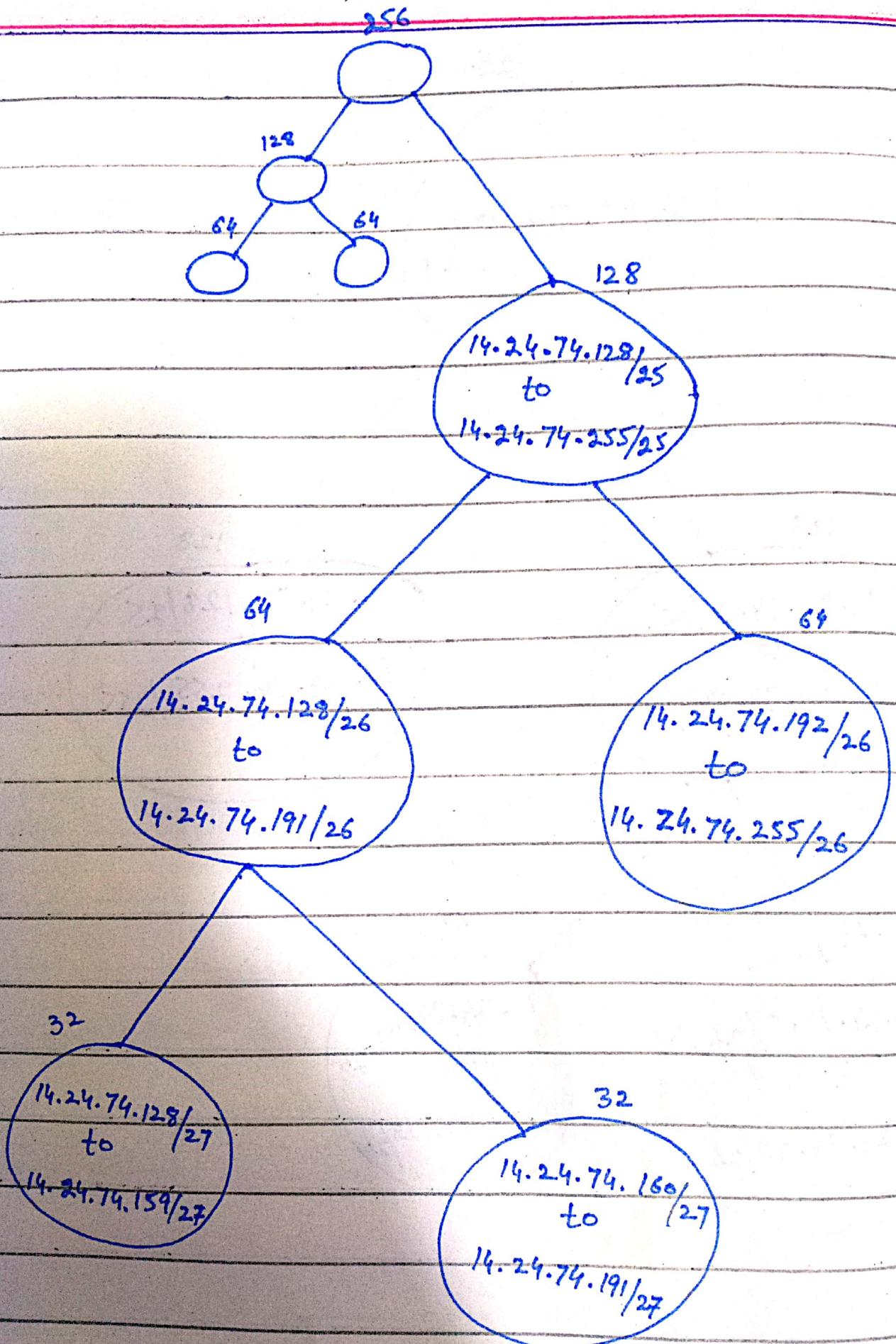


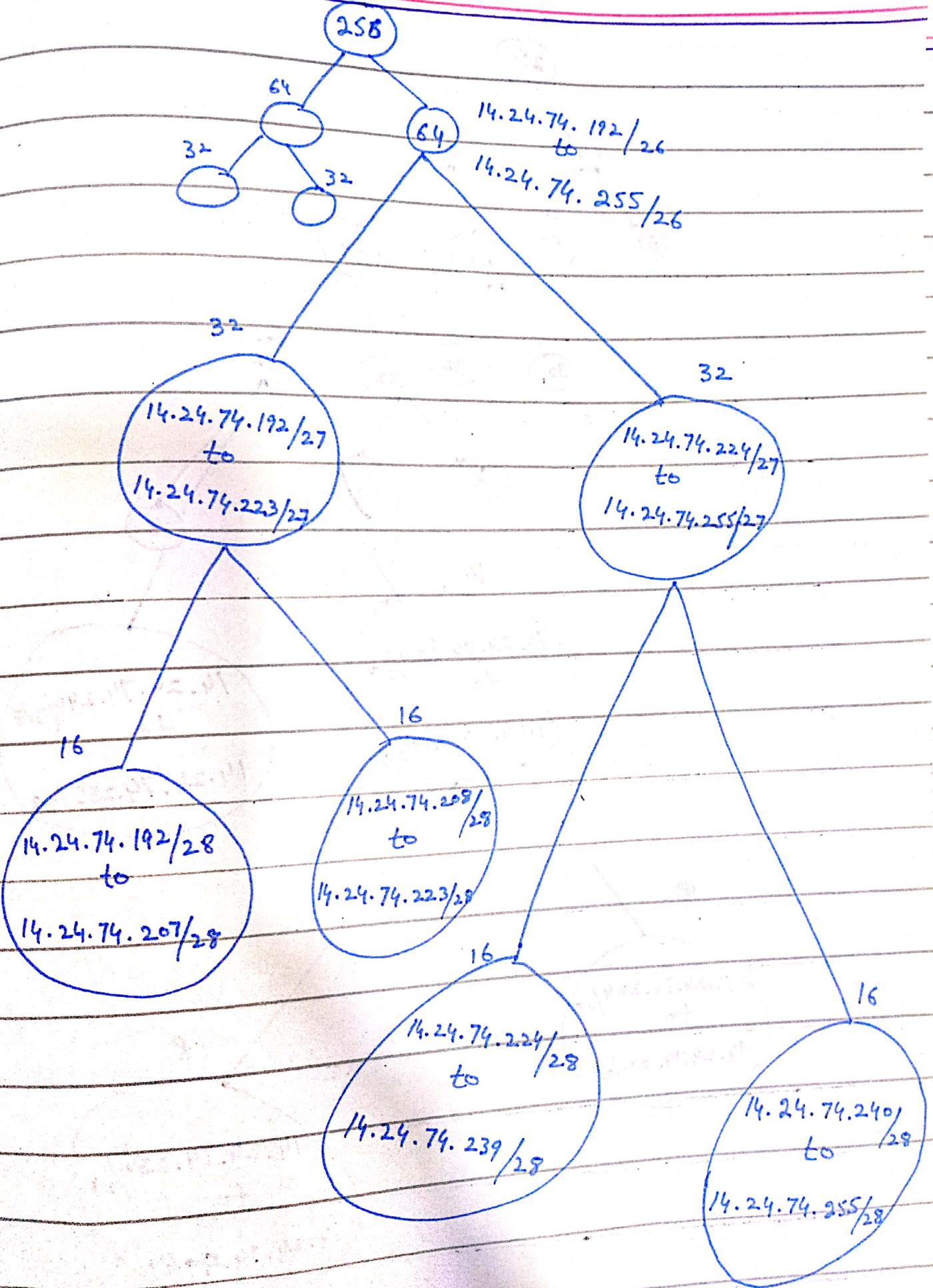
64

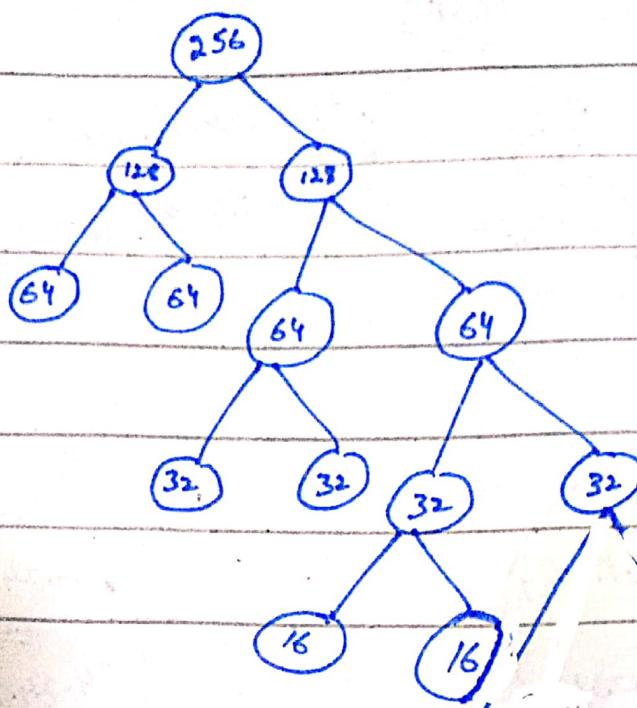


64

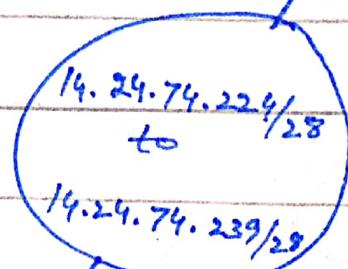




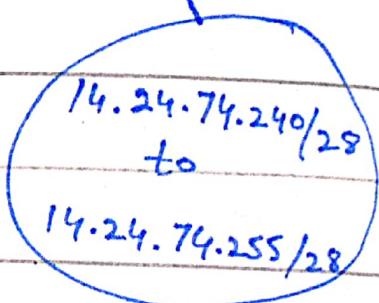




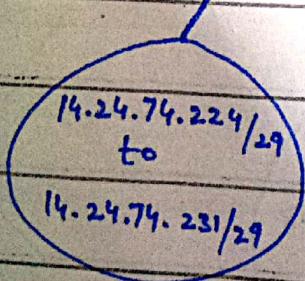
16



16



8



8

