

# BRYANT / CDN1 SEC 5. IP, BINARY & ROUTING

192.168.1.100 =

11000000 10101000 00000001 01100100

255.255.255.0 = (or 124)

11111111 11111111 11111111 00000000  
Network Host

## Routing 2: IP Address Classes

Class A: 1 - 126 255.0.0.0 (/8)

Class B: 128 - 191 255.255.0.0 (/16)

Class C: 192 - 223 255.255.255.0 (/24)

Loop back: 127

Class D: 224 - 239 Multicast

Class E: 240 - 255 Reserved ("experimental")

## Routing 3: Private Addresses

Non-routable address classes that can't leave a local Network.

Class A: 10.0.0.0 - 10.255.255.255

Class B: 172.16.0.0 - 172.31.255.255

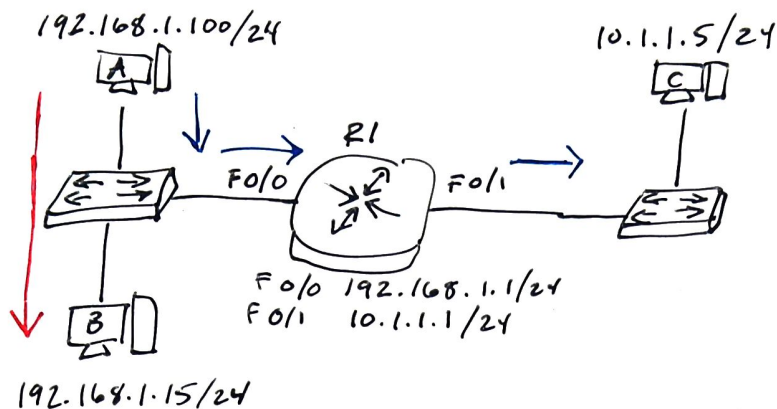
Class C: 192.168.0.0 - 192.168.255.255  
- OR -

10.0.0.0 255.0.0.0 (10.0.0.0 / 8)

172.16.0.0 255.240.0.0 (172.16.0.0 / 12)

192.168.0.0 255.255.0.0 (192.168.0.0 / 24)

## Routing 4: Connected Routes walk-through



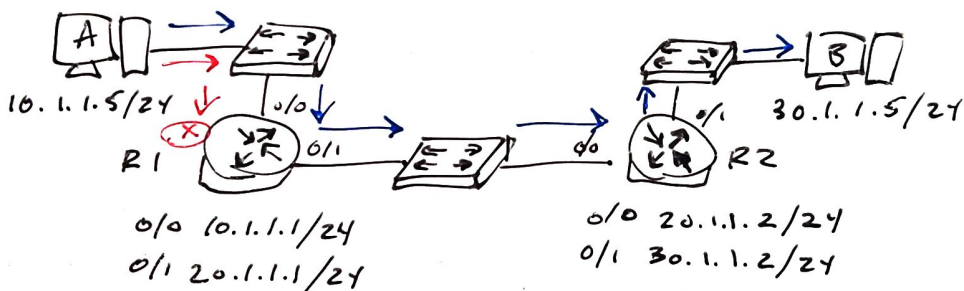
### PACKET DESTINATIONS

#### HOST SENDS PACKET

- ① Same subnet as the packets source
- ② different subnet

#### ROUTER RECEIVES PACKET

- Directly connected network
- Non-directly connected network with entry
- Non-directly connected network without routing entry



R1 # Show ip route

- 20.0.0.0/24 is subnetted, 1 subnets
- C 20.1.1.0 is directly connected, FastEthernet 0/1
- 10.0.0.0/24 is subnetted, 1 subnets
- C 10.1.1.0 is directly connected, Fast Ethernet 0/0

At this point R1 has no route to 30.1.1.0, so packets will be dropped. To add R2 as default route...

[R1(config)# ip route 0.0.0.0 0.0.0.0 20.1.1.2  
R2 would also need a static route for return traffic