TEJ4M Cisco Packet Tracer Networking Assignment

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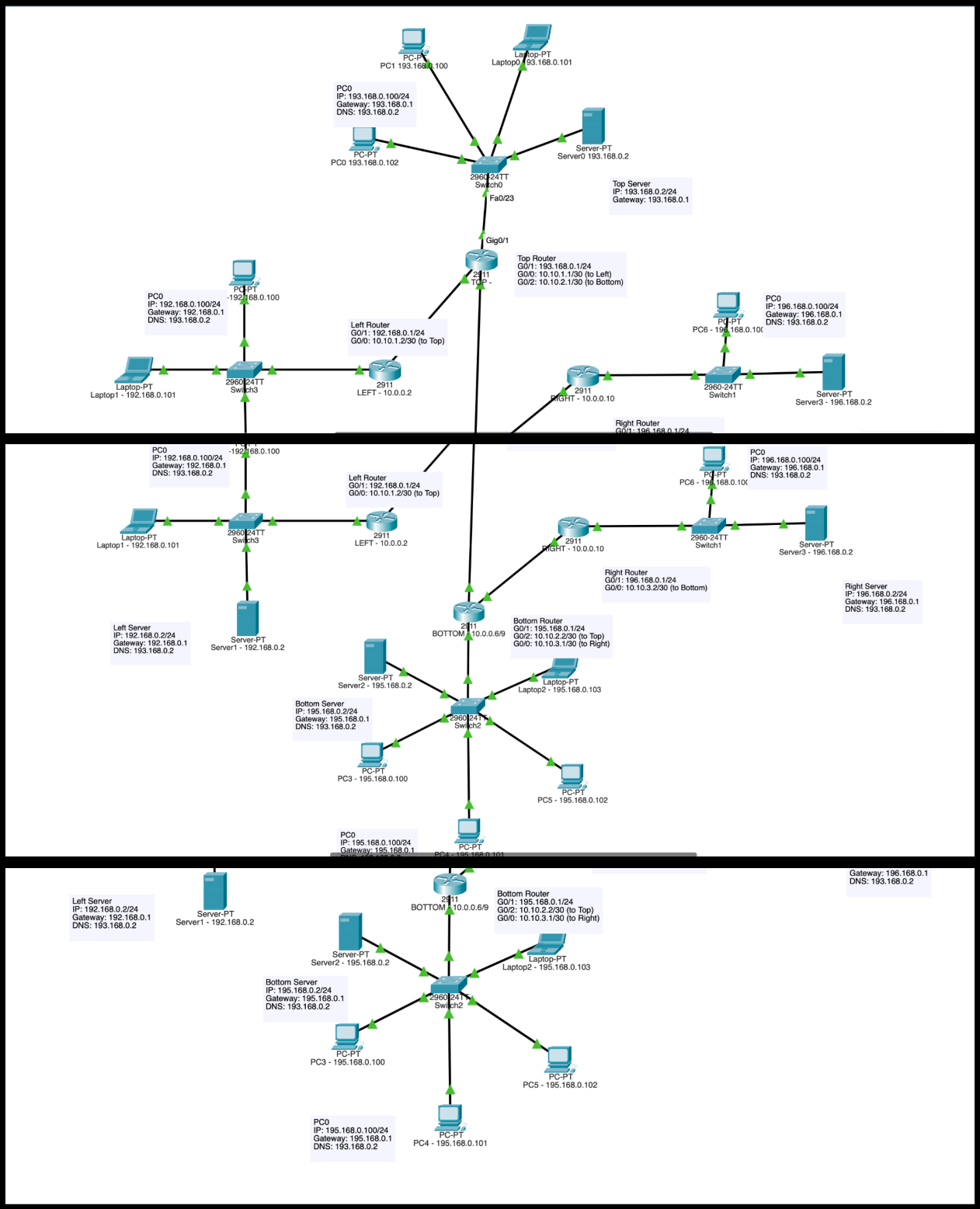
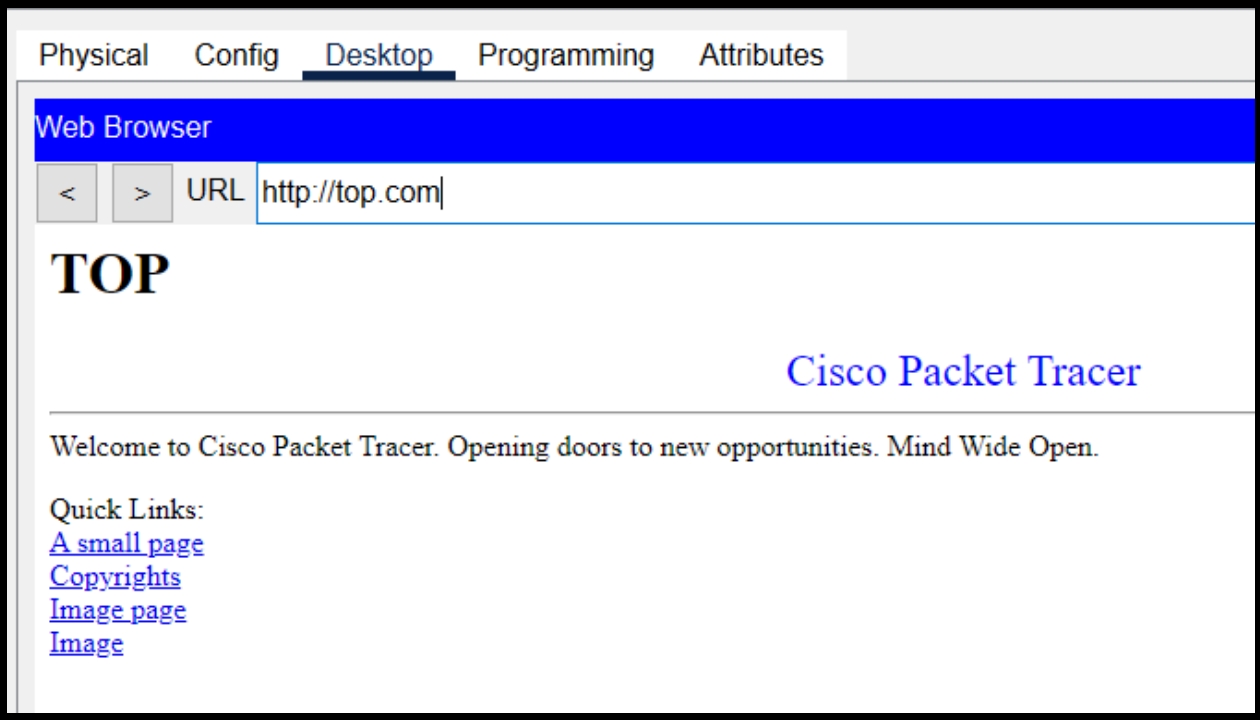


Working in your groups you will create and test a network that has the following specifications:

- There are 4 main local area networks
- Each of these has a **2960-24TT Switch**
- The entire network is designed such that each **LAN** is set up in a separate quadrant of the screen i.e. one LAN is at the top, the other at the bottom and the last two are located at the left and right side
- Each LAN has their own **DHCP** server

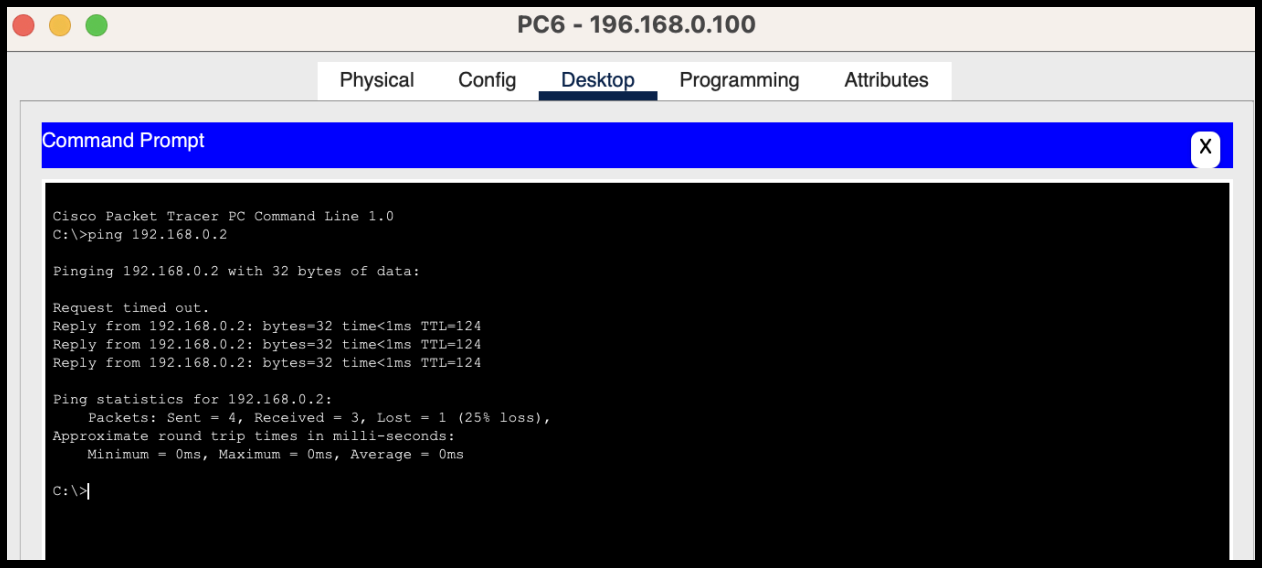
- The top LAN also has **DNS** running on its server
- The DNS server in the top LAN is used by all computers in all LANs
- Each server in each LAN hosts their own webpages and are thus running **HTTP** services
- Modify the **index.html** page on each server so that you insert an **<h1>** tag with the title **TOP, LEFT, BOTTOM, RIGHT** (the title is associated with the index.html page hosted by the particular server….for example let's say I access the index.html page of the LEFT server in the LEFT LAN then I would see the title LEFT appear)
- I should be able to access the index.html page of any server from any computer anywhere in the entire network and I should be able to do this via the domain names **left.com, right.com, top.com** and **bottom.com**
- An example of this would be as shown below:



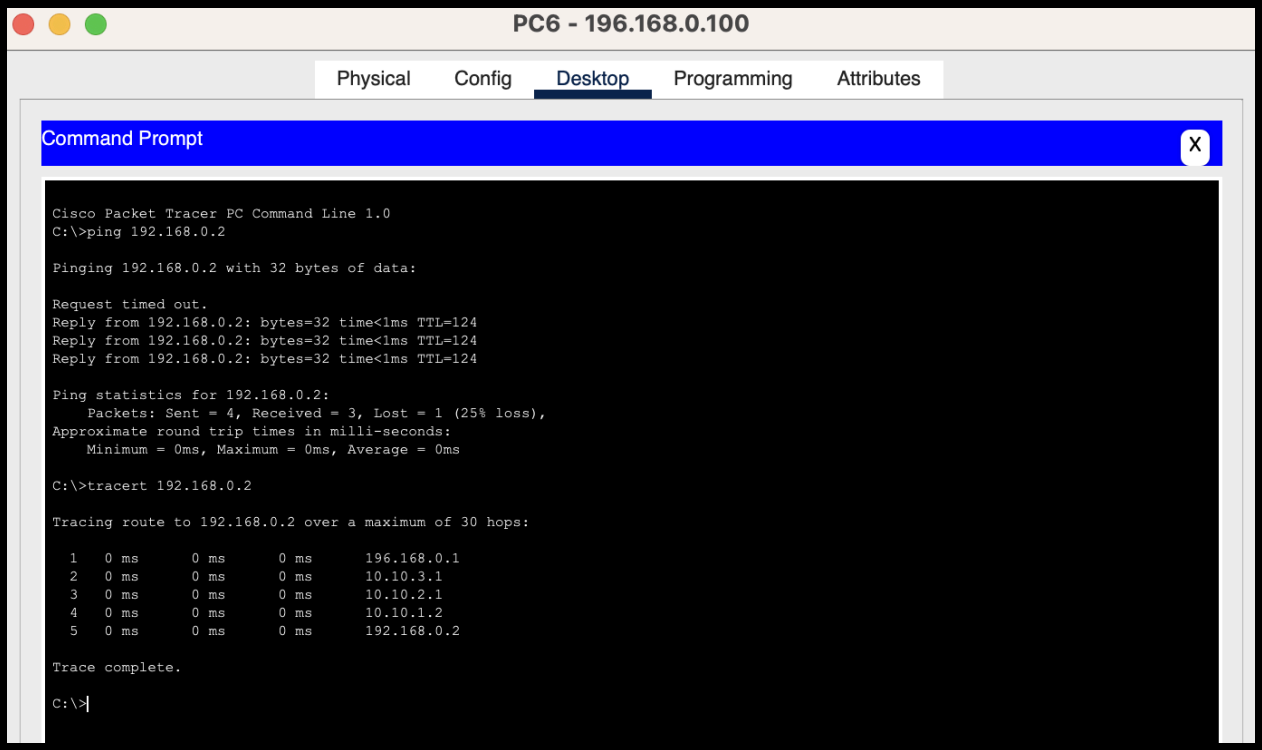
I am accessing top.com from the single computer in the RIGHT LAN. The domain top.com references the index.html page hosted at the server in the TOP LAN.

- I should be able to add computers to any LAN and have all their settings assigned by their local DHCP server
- Every computer should be able to ping any other computer anywhere in the entire network
- Use a **2911 router** for each LAN
- The TOP router connects to the LEFT and BOTTOM router
- The BOTTOM router connects to the TOP and RIGHT router
- The TOP LAN has 2 PCs and a Laptop
- The LEFT LAN has a single PC and a Laptop
- The BOTTOM LAN has 3 PCs and a Laptop
- The RIGHT LAN has a single PC
- The TOP servers IP address is 193.168.0.2 and the network address is 193.168.0.0/24
- The LEFT servers IP address is 192.168.0.2 and the network address is 192.168.0.0/24
- The BOTTOM servers IP address is 195.168.0.2 and the network address is 195.168.0.0/24
- The RIGHT servers IP address is 196.168.0.2 and the network address is 196.168.0.0/24
- Label the IP address of every device adapter using CIDR notation
- Label the services running on each server

Show the ping results via screenshot from the single PC on the RIGHT LAN to the server at 192.168.0.2:



Show the tracert results via screenshot from the single PC on the RIGHT LAN to the server at 192.168.0.2:



Explain these results:

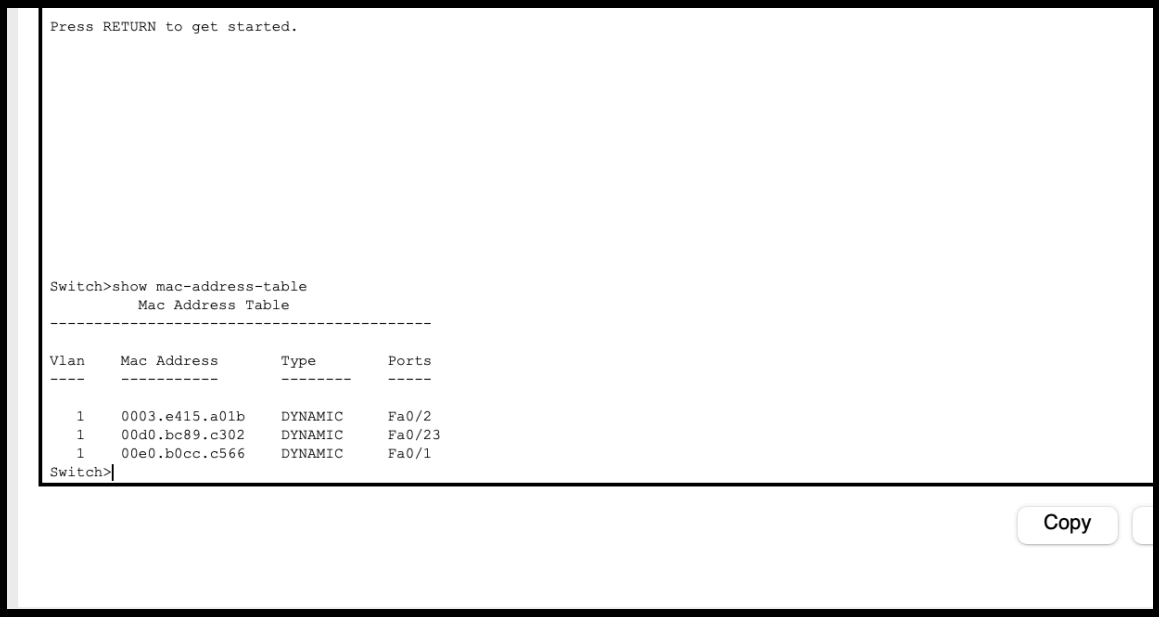
How many total networks are there?
7.
4 from the LANs then one connecting each of the 3 router combinations.
(Top-Bottom,Bottom-Right,Top-Left)

List all their network addresses:

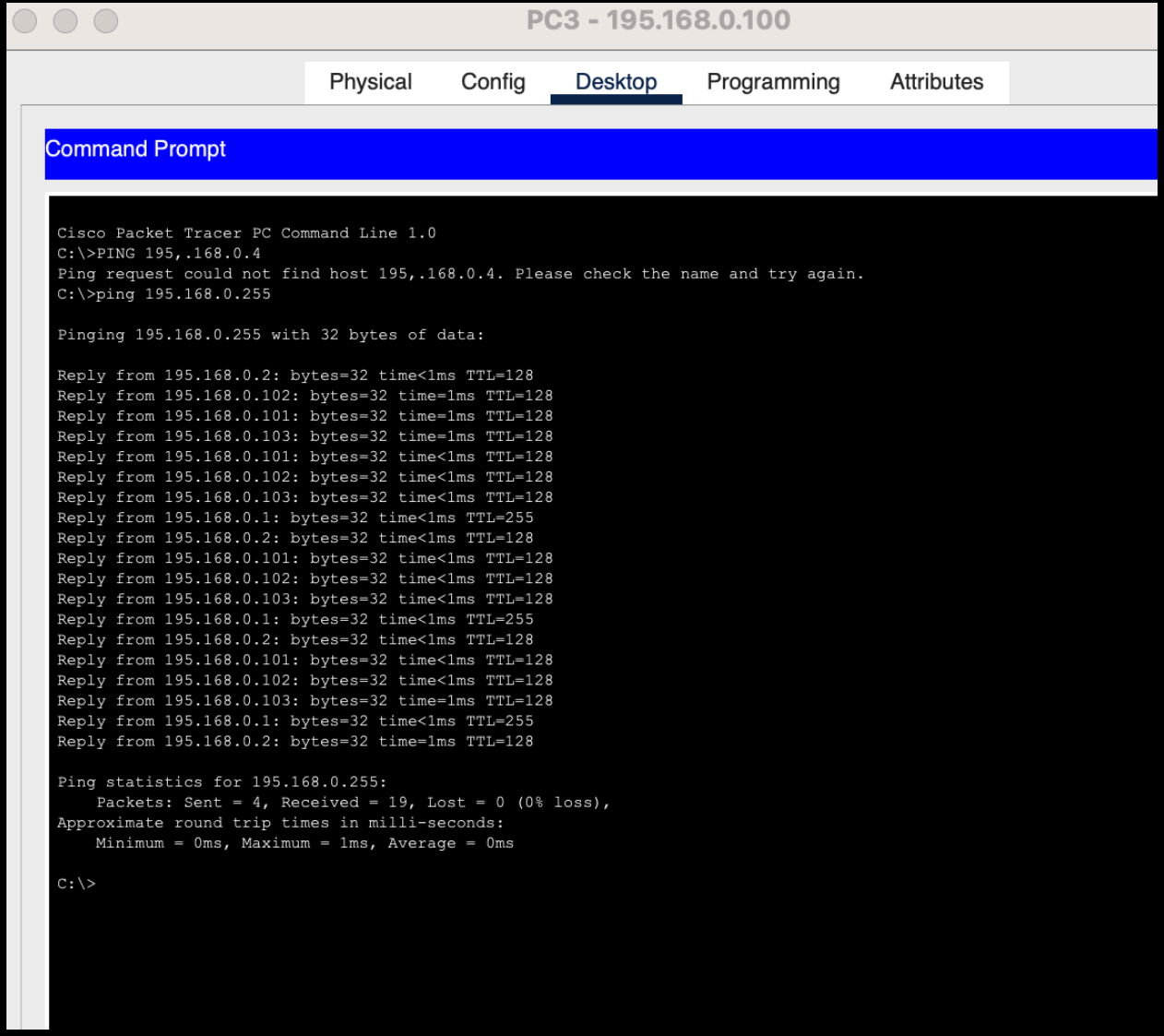
193.168.0.0/24 - TOP
192.168.0.0/24 - LEFT
195.168.0.0/24 - BOTTOM
196.168.0.0/24 - RIGHT

10.10.1.0/30 - LEFT/TOP
10.10.2.0/30 - BOTTOM/TOP
10.10.3.0/30 - BOTTOM/RIGHT

Show the mac address table from within the LEFT LAN's switch (it should list all the MAC addresses of all devices in the LAN):



Show the results of pinging the broadcast address of the BOTTOM LAN:



If you borrowed 3 host bits from the TOP LAN how many subnetworks could you make and what would those subnetwork addresses be (using CIDR notation)?

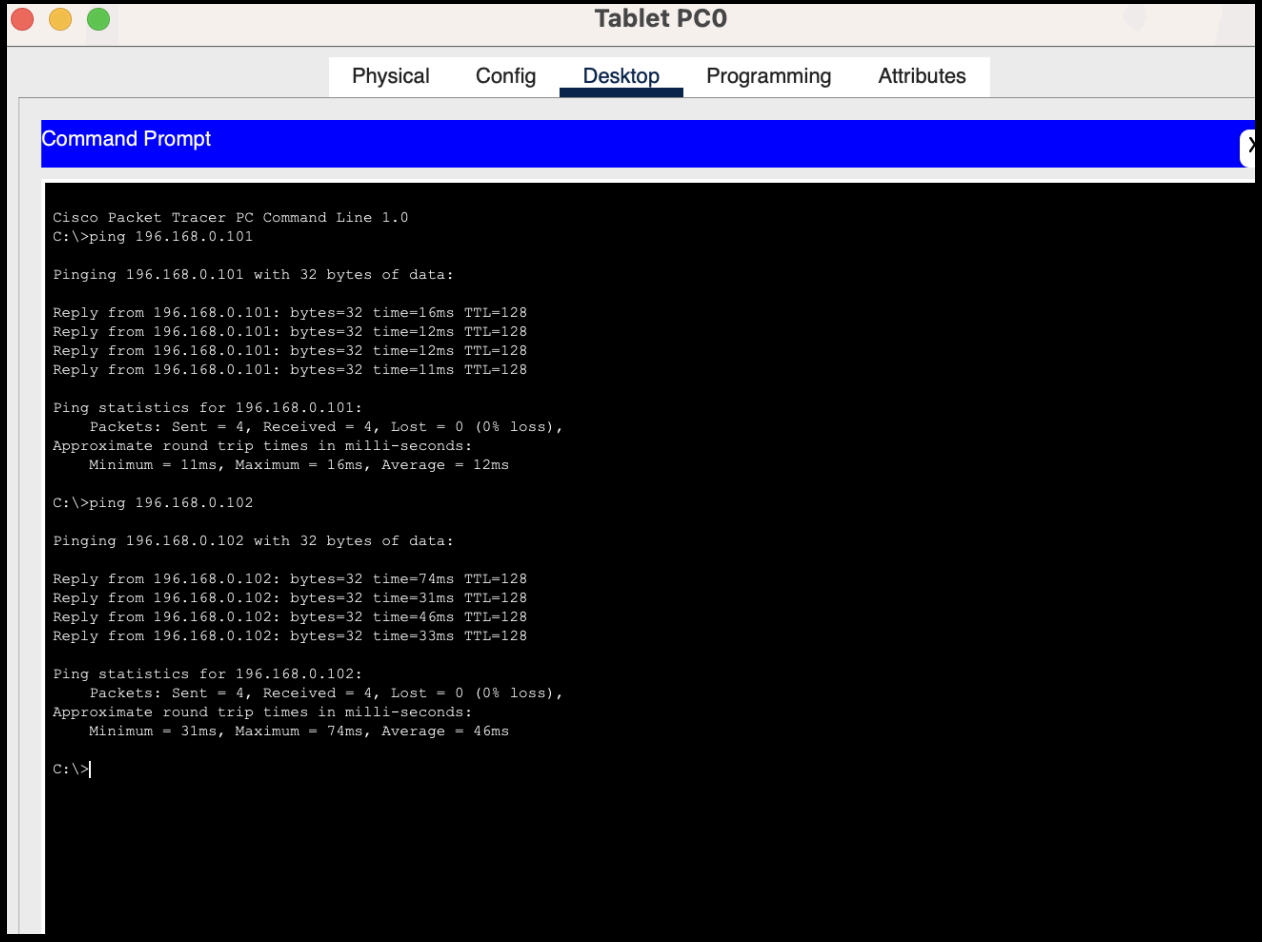
8 subnets.

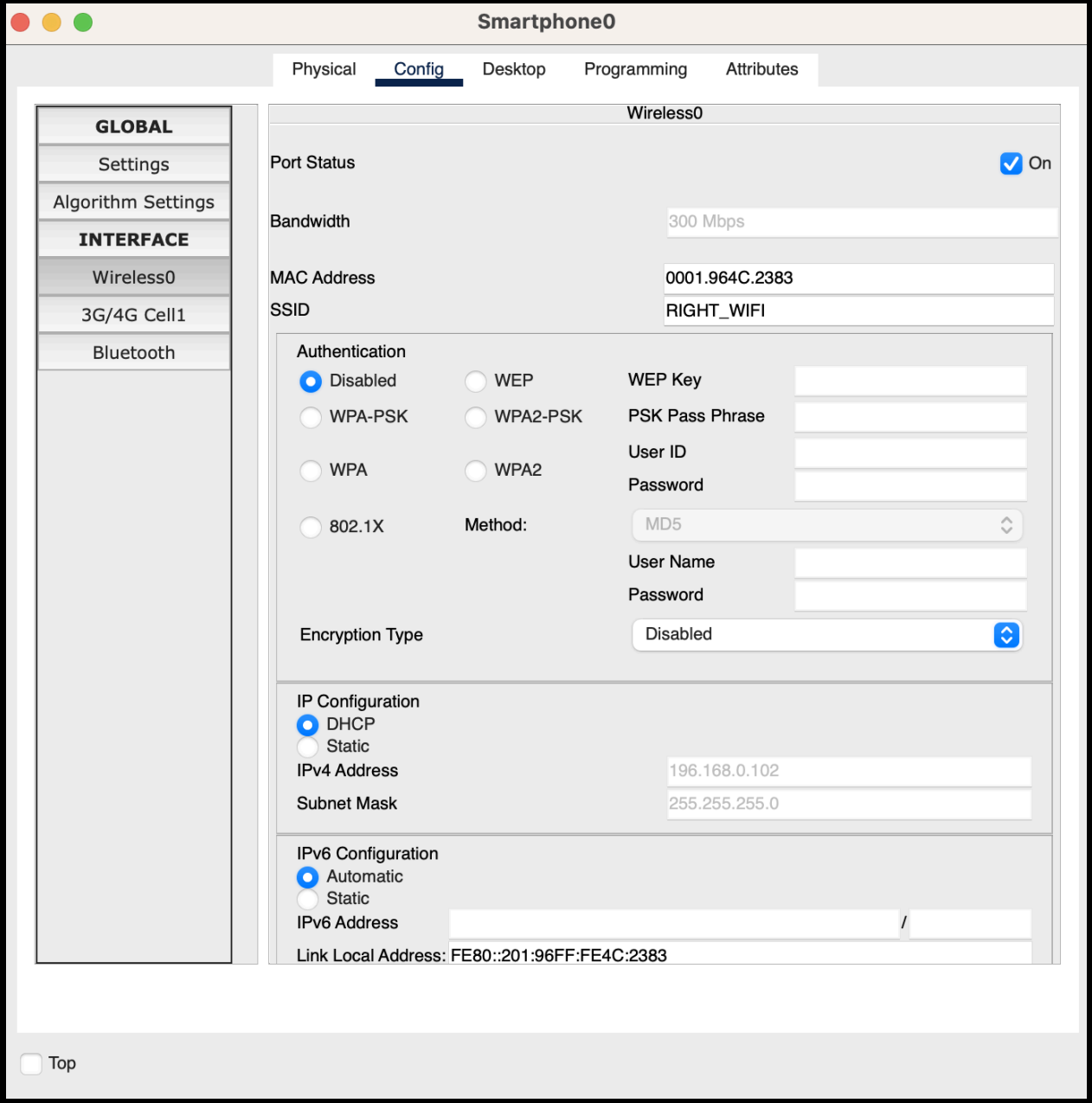
193.168.0.0/27
193.168.0.32/27
193.168.0.64/27
193.168.0.96/27
193.168.0.128/27
193.168.0.160/27
193.168.0.192/27
193.168.0.224/27

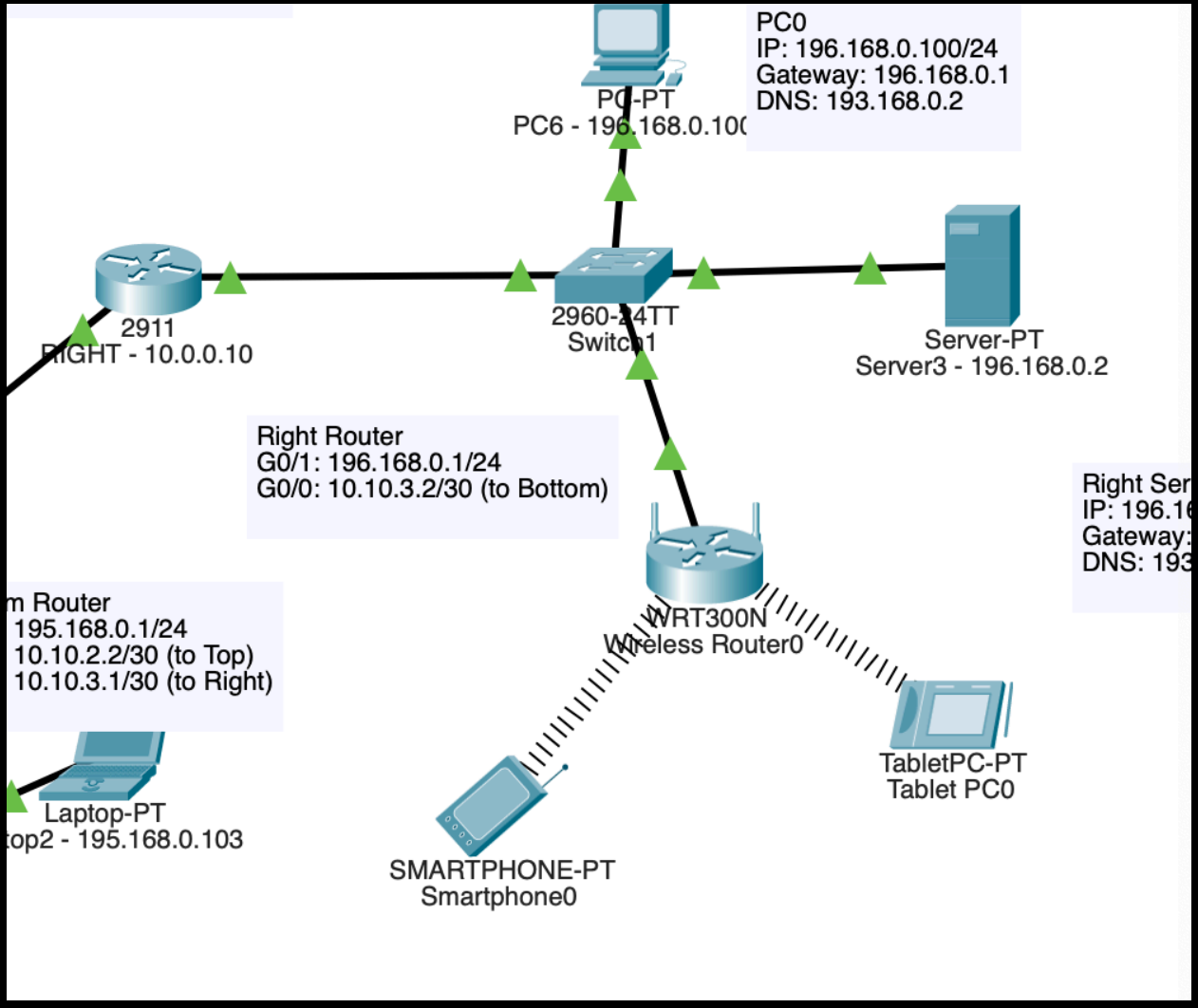
Excluding the network address and broadcast address in each subnet how many hosts could they have?
30 hosts without network and broadcast addresses.

BONUS: Add a wireless home router/switch to the RIGHT LAN and connect a tablet and cellphone to it wirelessly. Ping each device from the other to test its connectivity. You do not need to configure it to connect to anything else.

Images below


Tablet PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 196.168.0.101
Pinging 196.168.0.101 with 32 bytes of data:
Reply from 196.168.0.101: bytes=32 time=16ms TTL=128
Reply from 196.168.0.101: bytes=32 time=12ms TTL=128
Reply from 196.168.0.101: bytes=32 time=12ms TTL=128
Reply from 196.168.0.101: bytes=32 time=11ms TTL=128
Ping statistics for 196.168.0.101:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 11ms, Maximum = 16ms, Average = 12ms
C:\>ping 196.168.0.102
Pinging 196.168.0.102 with 32 bytes of data:
Reply from 196.168.0.102: bytes=32 time=74ms TTL=128
Reply from 196.168.0.102: bytes=32 time=31ms TTL=128
Reply from 196.168.0.102: bytes=32 time=46ms TTL=128
Reply from 196.168.0.102: bytes=32 time=33ms TTL=128
Ping statistics for 196.168.0.102:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 31ms, Maximum = 74ms, Average = 46ms
C:\>


Smartphone0
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
Wireless0
3G/4G Cell1
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
0001.964C.2383
SSID
RIGHT_WIFI
Authentication
Disabled
WEP
WEP Key
WPA-PSK
WPA2-PSK
PSK Pass Phrase
User ID
WPA
WPA2
Password
802.1X
Method:
MD5
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
196.168.0.102
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::201:96FF:FE4C:2383
Top



Make sure your layout is neat and organized. Save the network as a PKT and PKZ file. Include all your names in the filename and submit the files along with this rubric.