

All the listed Qs could be found in BOTH lab files: Manual and Slides (in yellow)

# Questions

- **Take a screenshot** of R2 (config-router) #network 172.16.0.0

```
R2(config-router)#network 172.16.0.0
R2(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 172.16.3.1 (Serial0/0/0) is up:
new adjacency
```

0.15

- What is the IP address of the EIGRP neighbor router? 172.16.3.1
- What interface on the R2 router is the neighbor adjacent to?

Serial0/0/0

0.15

# Questions

- Examine the Successors and Feasible distances in the routing table on R2 (**Take a screenshot**) using **show ip route command**

```
R2#  
D      172.16.0.0/16 is variably subnetted, 4 subnets, 3 masks  
D      172.16.0.0/16 is a summary, 00:09:43, Null0  
D      172.16.1.0/24 [90/40514560] via 172.16.3.1, 00:11:19, Serial0/0/0  
C      172.16.2.0/24 is directly connected, FastEthernet0/0  
C      172.16.3.0/30 is directly connected, Serial0/0/0  
D      192.168.1.0/24 [90/3014400] via 192.168.10.10, 00:09:41, Serial0/0/1  
D      192.168.10.0/24 is variably subnetted, 3 subnets, 2 masks  
D      192.168.10.0/24 is a summary, 00:09:43, Null0  
D      192.168.10.4/30 [90/3523840] via 192.168.10.10, 00:09:41, Serial0/0/1  
C      192.168.10.8/30 is directly connected, Serial0/0/1
```

0.15

# Questions

- What is the best path to PC1?
  - D 172.16.1.0/24 [90/40514560] via 172.16.3.1, 00:11:19, Serial0/0/0 0.15
- What is the IP address and name of the successor router in this route?(The IP address of a successor is shown in a routing table entry right after the word “via”)
  - R1 IP address 172.16.3.1 0.15
- What is the feasible distance to the network that PC1 is on? (FD is the metric listed in the routing table entry as the second number inside the brackets)
  - 40514560 0.15

# Questions

- For the route from **R2** to the **192.168.1.0** Network
- Examine the routing table on R1

```
172.16.0.0/16 is variably subnetted, 4 subnets, 3
masks
D      172.16.0.0/16 is a summary, 01:14:37, Null0
C      172.16.1.0/24 is directly connected,
FastEthernet0/0
D      172.16.2.0/24 [90/40514560] via 172.16.3.2,
00:26:26, Serial0/0/0
C      172.16.3.0/30 is directly connected, Serial0/0/0
D      192.168.1.0/24 [90/2172416] via 192.168.10.6,
00:57:41, Serial0/0/1
      192.168.10.0/24 is variably subnetted, 3 subnets, 2
masks
D      192.168.10.0/24 is a summary, 01:14:37, Null0
C      192.168.10.4/30 is directly connected,
Serial0/0/1
D      192.168.10.8/30 [90/3523840] via 192.168.10.6,
00:21:28, Serial0/0/1
```

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- What is the reported distance to the **192.168.1.0** network? **2172416**

# Questions

- Examine the routing table on R2 using the **show ip route** command

```
-----  
D      172.16.0.0/16 is a summary, 00:28:45, Null0  
D      172.16.1.0/24 [90/40514560] via 172.16.3.1,  
00:30:21, Serial0/0/0  
C      172.16.2.0/24 is directly connected,  
FastEthernet0/0  
C      172.16.3.0/30 is directly connected, Serial0/0/0  
D      192.168.1.0/24 [90/3014400] via 192.168.10.10,  
00:28:43, Serial0/0/1  
      192.168.10.0/24 is variably subnetted, 3 subnets, 2  
masks  
D      192.168.10.0/24 is a summary, 00:28:45, Null0  
D      192.168.10.4/30 [90/3523840] via 192.168.10.10,  
00:28:43, Serial0/0/1  
C      192.168.10.8/30 is directly connected,  
Serial0/0/1
```

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- What is the feasible distance to the 192.168.1.0 network? 3014400
- Would R2 consider R1 to be a feasible successor to the 192.168.1.0 network? Yes

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# Questions

- Use the **show ip eigrp topology network-address** command to view detail EIGRP topology information for the **192.16.1.0** network on R2

```
R2#show ip eigrp topology 192.168.1.0
IP-EIGRP (AS 1): Topology entry for 192.168.1.0/24
  State is Passive, Query origin flag is 1, 1 Successor(s), FD is 3014400
  Routing Descriptor Blocks:
    192.168.10.10 (Serial0/0/1), from 192.168.10.10, Send flag is 0x0
      Composite metric is (3014400/28160), Route is Internal
      Vector metric:
        Minimum bandwidth is 1024 Kbit
        Total delay is 20100 microseconds
        Reliability is 255/255
        Load is 1/255
        Minimum MTU is 1500
        Hop count is 1
    172.16.3.1 (Serial0/0/0), from 172.16.3.1, Send flag is 0x0
      Composite metric is (41026560/2172416), Route is Internal
      Vector metric:
        Minimum bandwidth is 64 Kbit
        Total delay is 40100 microseconds
        Reliability is 255/255
        Load is 1/255
        Minimum MTU is 1500
        Hop count is 2
```

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0.15

- How many successors are there for this network? **One**
- What is the feasible distance to this network? **3014400**

0.15

# Questions

- What is the IP address of the feasible successor? 172.16.3.1015
- What is the reported distance (AD) for 192.168.1.0 from the feasible successor? 2172416 0.15
- What would be the feasible distance to 192.168.1.0 if R1 became the successor? 41026560 0.15



# Questions

- Examine the **routing table** of the **R3** router using **show ip eigrp topology** (**Take a Screenshot**)
- Why is the R1 router (192.168.10.5) the only successor for the route to the 172.16.0.0/16 network?
  - R1 router has a better metric or higher bandwidth 0.15

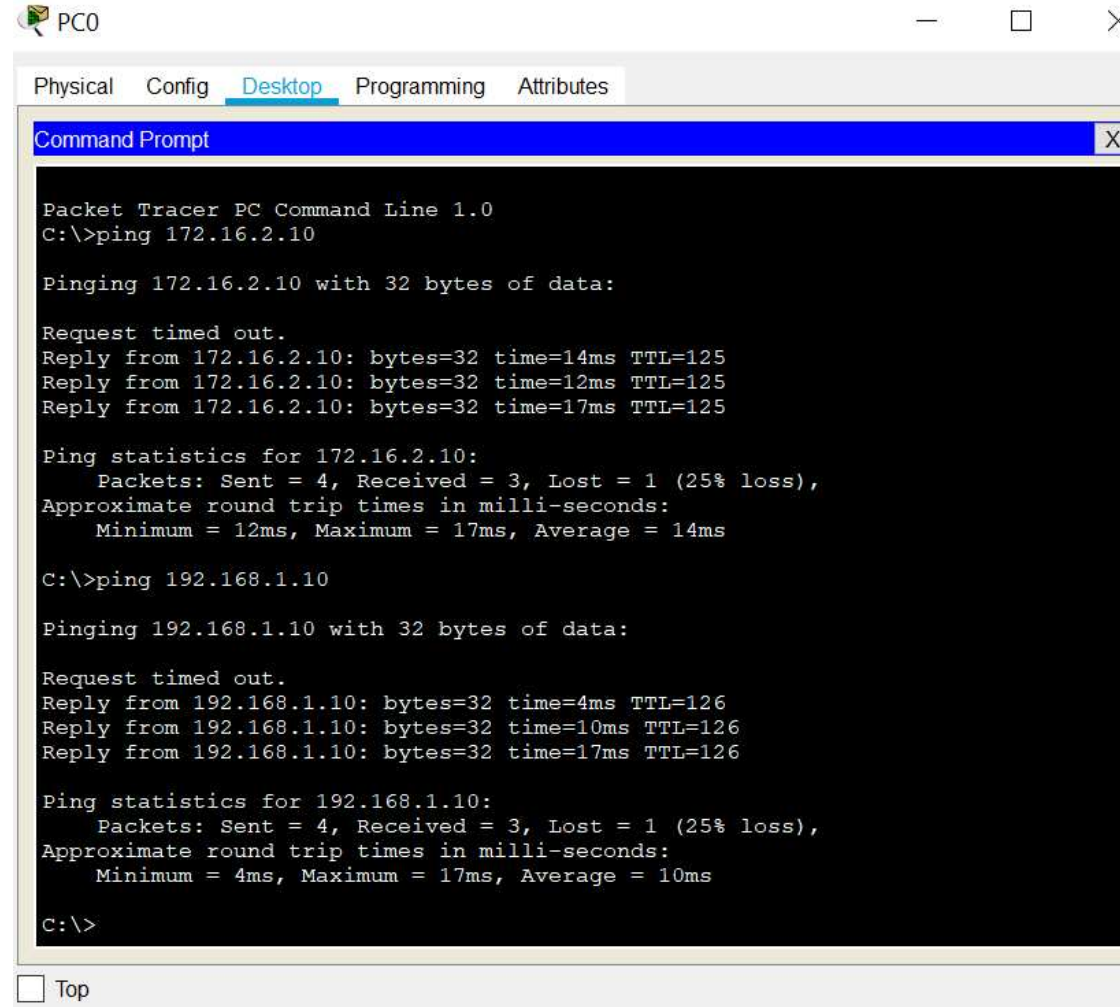
```
-
D 172.16.0.0/16 [90/2172416] via 192.168.10.5,
01:23:01, Serial0/0/0
C 192.168.1.0/24 is directly connected,
FastEthernet0/0
  192.168.10.0/24 is variably subnetted, 3 subnets, 2
masks
D 192.168.10.0/24 is a summary, 01:23:01, Null0
C 192.168.10.4/30 is directly connected,
Serial0/0/0
C 192.168.10.8/30 is directly connected,
Serial0/0/1
```

R3#

# Questions

- From **each PC, ping the other PCs' IP addresses** and **take screenshot**
  - You **should be able to ping other pcs** in different subnets
  - **One loss** out of 4 is **OK**, but more than that means you have **connectivity or configurations issues**

# From PC0 ping PC1 and PC2



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt X
Packet Tracer PC Command Line 1.0
C:\>ping 172.16.2.10

Pinging 172.16.2.10 with 32 bytes of data:

Request timed out.
Reply from 172.16.2.10: bytes=32 time=14ms TTL=125
Reply from 172.16.2.10: bytes=32 time=12ms TTL=125
Reply from 172.16.2.10: bytes=32 time=17ms TTL=125

Ping statistics for 172.16.2.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 17ms, Average = 14ms

C:\>ping 192.168.1.10

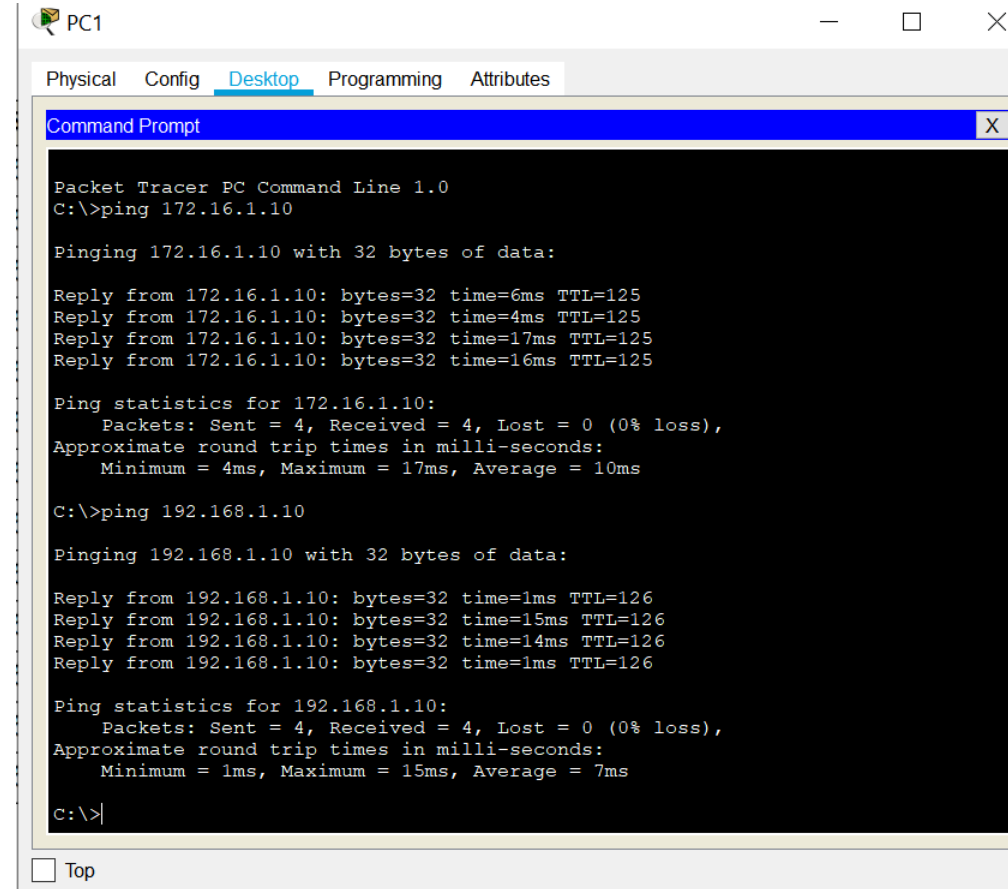
Pinging 192.168.1.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.10: bytes=32 time=4ms TTL=126
Reply from 192.168.1.10: bytes=32 time=10ms TTL=126
Reply from 192.168.1.10: bytes=32 time=17ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 17ms, Average = 10ms

C:\>
```

# From PC1 ping PC0 and PC2



```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=6ms TTL=125
Reply from 172.16.1.10: bytes=32 time=4ms TTL=125
Reply from 172.16.1.10: bytes=32 time=17ms TTL=125
Reply from 172.16.1.10: bytes=32 time=16ms TTL=125

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 17ms, Average = 10ms

C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

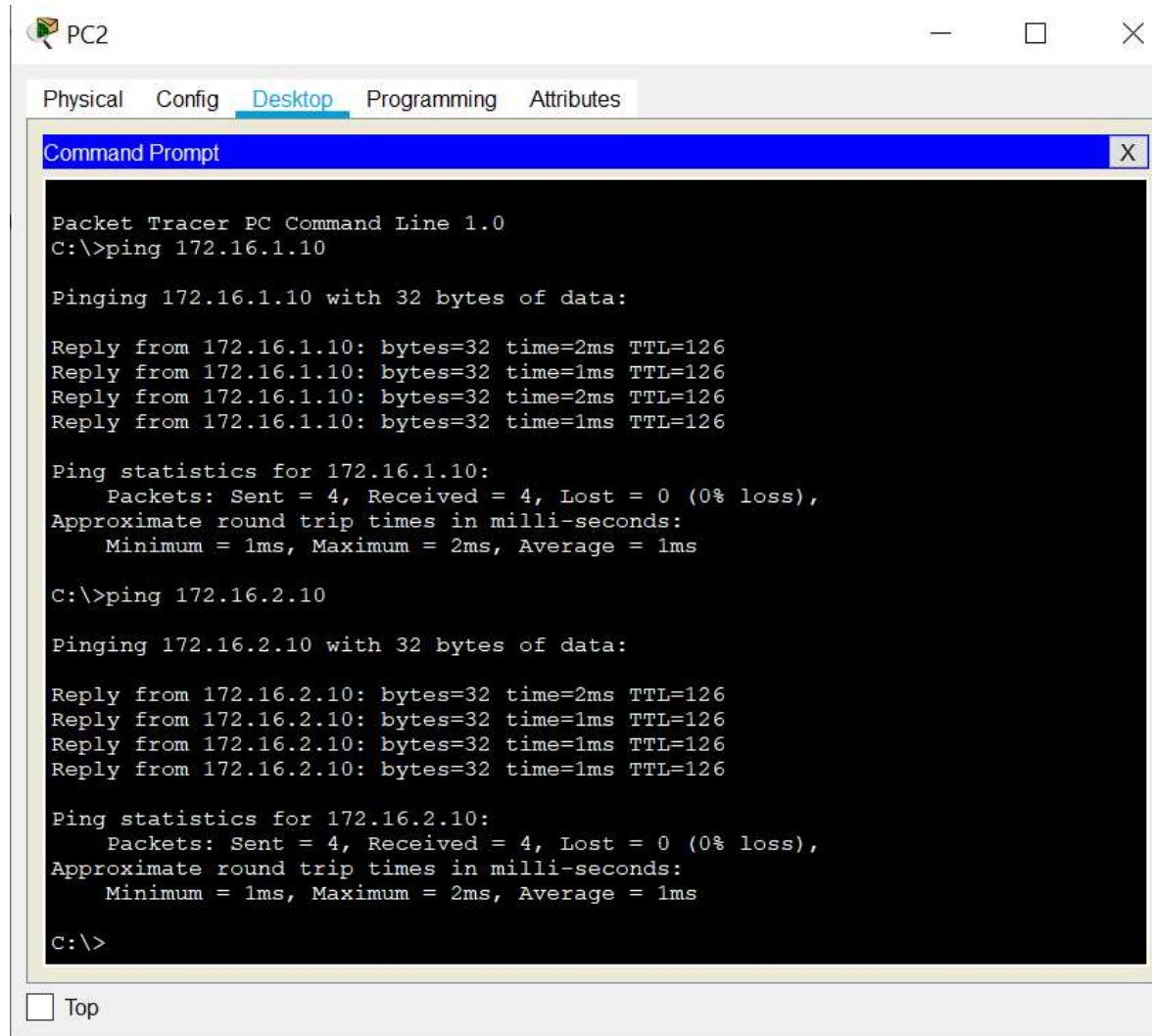
Reply from 192.168.1.10: bytes=32 time=1ms TTL=126
Reply from 192.168.1.10: bytes=32 time=15ms TTL=126
Reply from 192.168.1.10: bytes=32 time=14ms TTL=126
Reply from 192.168.1.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 15ms, Average = 7ms

C:\>
```

2

# From PC2 ping PC0 and PC1



The screenshot shows a Packet Tracer PC2 window with the 'Desktop' tab selected. Inside the window is a 'Command Prompt' application. The command prompt displays the results of two ping commands: 'ping 172.16.1.10' and 'ping 172.16.2.10'. Both pings are successful, showing 4 packets sent, 4 received, and 0% loss. The round trip times are approximately 1ms to 2ms. A blue hand-drawn checkmark is visible to the right of the command prompt window.

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=2ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=2ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>ping 172.16.2.10

Pinging 172.16.2.10 with 32 bytes of data:

Reply from 172.16.2.10: bytes=32 time=2ms TTL=126
Reply from 172.16.2.10: bytes=32 time=1ms TTL=126
Reply from 172.16.2.10: bytes=32 time=1ms TTL=126
Reply from 172.16.2.10: bytes=32 time=1ms TTL=126

Ping statistics for 172.16.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>
```