# - Best Route Determination Exercises -

1.  A packet is destined for the 192.168.123.150 host. Which of the following routes will be used?

```
Gateway of last resort is 192.168.1.1 to network 0.0.0.0

C     192.168.1.0/24 is directly connected, Ethernet0
      150.50.0.0/16 is subnetted, 1 subnets
C        150.50.200.0/24 is directly connected, Loopback1
C     192.168.123.0/24 is directly connected, Serial0
C     192.168.111.0/24 is directly connected, Serial1
R     10.0.0.0 [120/1] via 192.168.123.1, 00:00:00, Serial0
               [120/1] via 192.168.111.2, 00:00:00, Serial1
S*    0.0.0.0/0 [1/0] via 192.168.1.1
```

2.  A packet is destined for the 77.123.14.107 host. Which of the following are *possible* routes to this destination? Which route is the *best* route to this destination?

```
Gateway of last resort is 192.168.1.1 to network 0.0.0.0

C     192.168.1.0/24 is directly connected, Ethernet0
C     203.13.20.0/24 is directly connected, Loopback1
C     192.168.2.0/24 is directly connected, Ethernet1
C     192.168.3.0/24 is directly connected, Ethernet2
C     192.168.4.0/24 is directly connected, Ethernet3
      77.0.0.0/8 is variably subnetted, 10 subnets, 6 masks
R        77.0.0.0/16       [120/4] via 192.168.1.1, 00:00:01, Ethernet0
R        77.123.14.0/25    [120/2] via 192.168.1.1, 00:00:01, Ethernet0
O        77.123.14.0/24    [110/41] via 192.168.4.1, 00:00:01, Ethernet3
O        77.123.0.0/16     [110/35] via 192.168.1.1, 00:00:01, Ethernet0
O        77.123.14.100/30  [110/49] via 192.168.3.1, 00:00:01, Ethernet2
R        77.123.14.96/29   [120/9] via 192.168.3.1, 00:00:01, Ethernet2
R        77.123.14.104/30  [120/10] via 192.168.1.1, 00:00:01, Ethernet0
O        77.123.14.100/31  [110/24] via 192.168.2.1, 00:00:01, Ethernet1
R        77.120.0.0/16     [120/11] via 192.168.2.1, 00:00:01, Ethernet1
i        77.123.14.104/30  [115/10] via 192.168.2.1, 00:00:01, Ethernet1
R        71.123.14.96/29   [120/3] via 192.168.4.1, 00:00:01, Ethernet3
S*    0.0.0.0/0 [1/0] via 192.168.1.1
```

3.  A packet is destined for the 158.80.1.217 host. Which of the following are *possible* routes to this destination? Which route is the *best* route to this destination?

```
Gateway of last resort is 10.3.1.1 to network 0.0.0.0

        10.0.0.0/8 is variably subnetted, 5 subnets, 1 masks
C          10.1.0.0/16 is directly connected, Ethernet0
C          10.2.0.0/24 is directly connected, Ethernet1
C          10.3.0.0/24 is directly connected, Ethernet2
C          10.4.0.0/24 is directly connected, Ethernet3
C       203.13.20.0/24 is directly connected, Loopback1
        158.80.0.0/16 is variably subnetted, 10 subnets, 6 masks
D          158.80.0.0/16     [90/12793734] via 10.1.1.1, 00:00:01, Ethernet0
D          158.80.1.0/25     [90/43762352] via 10.1.1.1, 00:00:01, Ethernet0
S          158.79.1.216/30   [1/0] via 10.4.1.1, 00:00:01, Ethernet3
D          158.76.0.0/15     [90/33523685] via 10.1.1.1, 00:00:01, Ethernet0
S          158.80.1.0/26     [1/0] via 10.3.1.1, 00:00:01, Ethernet2
S          158.80.0.216/30   [1/0] via 10.3.1.1, 00:00:01, Ethernet2
D          158.80.1.210/30   [90/12223450] via 10.1.1.1, 00:00:01, Ethernet0
S          158.80.1.192/28   [1/0] via 10.2.1.1, 00:00:01, Ethernet1
S          158.80.0.0/16     [1/0] via 10.2.1.1, 00:00:01, Ethernet1
D          158.80.1.0/25     [90/19388740] via 10.2.1.1, 00:00:01, Ethernet1
D          158.80.1.216/32   [90/27834983] via 10.4.1.1, 00:00:01, Ethernet3
S*      0.0.0.0/0 [1/0] via 10.3.1.1
```

4.  A packet is destined for the 158.78.254.1 host. Which of the following are *possible* routes to this destination? Which route is the *best* route to this destination?

```
Gateway of last resort is 10.3.1.1 to network 0.0.0.0

        10.0.0.0/8 is variably subnetted, 5 subnets, 1 masks
C          10.1.0.0/16 is directly connected, Ethernet0
C          10.2.0.0/24 is directly connected, Ethernet1
C          10.3.0.0/24 is directly connected, Ethernet2
C          10.4.0.0/24 is directly connected, Ethernet3
C       203.13.20.0/24 is directly connected, Loopback1
        158.80.0.0/16 is variably subnetted, 10 subnets, 6 masks
D          158.80.0.0/16     [90/12793734] via 10.1.1.1, 00:00:01, Ethernet0
D          158.80.1.0/25     [90/43762352] via 10.1.1.1, 00:00:01, Ethernet0
S          158.79.1.216/30   [1/0] via 10.4.1.1, 00:00:01, Ethernet3
D          158.76.0.0/15     [90/33523685] via 10.1.1.1, 00:00:01, Ethernet0
S          158.80.1.0/26     [1/0] via 10.3.1.1, 00:00:01, Ethernet2
S          158.80.0.216/30   [1/0] via 10.3.1.1, 00:00:01, Ethernet2
D          158.80.1.210/30   [90/12223450] via 10.1.1.1, 00:00:01, Ethernet0
S          158.80.1.192/28   [1/0] via 10.2.1.1, 00:00:01, Ethernet1
S          158.80.0.0/16     [1/0] via 10.2.1.1, 00:00:01, Ethernet1
D          158.80.1.0/25     [90/19388740] via 10.2.1.1, 00:00:01, Ethernet1
D          158.80.1.216/32   [90/27834983] via 10.4.1.1, 00:00:01, Ethernet3
S*      0.0.0.0/0 [1/0] via 10.3.1.1
```