- Best Route Determination Exercises -

Note: **Possible Routes** will be bolded and ***Best Routes*** will be bolded *and* italicized to denote the correct answers.

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
```