Quiz 2 Solution

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1. (5 points). The table at right represents a forwarding table for an IP router (for simplicity, we are using 8 bit addresses).

    If a packet arrives with destination address 0101 0011, what output is it sent to, and what is the IP address of the next network-level component to receive the packet?

    5, 0101 0011

prefix	next hop output	next hop address
101*	2	1010 1111
0100*	4	0100 0110
0010 0*	6	-
1010 1*	7	-
0101 0*	5	0101 0011
1011 00*	3	1011 0000
0101 11*	1	0101 1100
0010 01*	9	-

If a packet arrives with destination address 1010 1110, what output is it sent to, and what is the IP address of the next network-level component to receive the packet?

7, 1010 1110

Does the address 1011 0000 belong to a host or a router? How do you know?

It belongs to a router. Only router addresses appear explicitly in the next-hop-address field.

2. (5 points). Suppose a server with IP address 1.2.3.4 starts executing the following lines of java.

```
ServerSocket sock = new ServerSocket();
sock.bind(InetSocketAddress("1.2.3.4",14357));
Socket connsock1 = sock.accept();
Socket connsock2 = sock.accept();
InetAddress x = connsock1.getInetAddress();
InetAddress y = connsock2.getLocalAddress();
```

Now, suppose a host with IP address 2.3.4.5 executes the following lines.

```
Socket sockA = new Socket();
sockA.bind(InetSocketAddress("2.3.4.5",23456));
sockA.connect(InetSocketAddress("1.2.3.4",14357));
```

At this point, how many sockets are there at the server?

2

A short while later, another host with IP address 3.4.5.6 executes the following lines.

```
Socket sockB = new Socket();
sockB.bind(InetSocketAddress("3.4.5.6", 54321))
sockB.connect(InetSocketAddress("1.2.3.4",14357))
```

At this point, how many sockets are there at the server?

3

How many port numbers are being used at the server?

1

What are the values of the variables x and y at the server?

x=2.3.4.5 y=1.2.3.4