# Networking Module Quiz

1. Obligatory OSI Seven-layer model question. Fill in the table. You can ignore the blocks in gray.

|  |  |  |  |
| --- | --- | --- | --- |
| Layer | Name | Address Type | Description, Example, or name of hardware/software |
| 7 |  |  |  |
| 6 | Presentation |  | In layer 7 ASCII |
| 5 | Session |  | In layer 4 |
| 4 |  |  |  |
| 3 |  |  |  |
| 2 |  |  |  |
| 1 |  |  |  |

1. What is a **recursive** DNS lookup (5 points)?
2. When a DNS server tells you its answer is **non-authoritative**, does that mean the answer cannot be trusted? Why or why not?
3. Wireshark displays a MAC address c8:b3:73:47:d9:c4 as Cisco\_47:d9:c4. How does it know to change the first part to Cisco?
4. A friend tells you their computer cannot browse the Internet. When you look at their network configuration, you see this. What is the problem?  
   IP address 196.168.231.15  
   Mask 255.255.255.0  
   Gateway 192.168.230.1
5. If I ping [www.google.com](http://www.google.com), will the MAC address of Google appear in my ARP cache? Why or why not?
6. What is the difference between static routing and dynamic routing?
7. When a machine boots, or gets a new IP address, it often sends an ARP request for its own address. (ARP who is at <my IP address> ). Why would it do that?
8. Most people never configure the IP address, mask, default gateway, and DNS server for their computer. How does the computer get that information?

Use the file NetQuiz.pcap and Wireshark to answer the following questions.

1. What is the IP address of en.wikipedia.org? (A display filter, dns, may help, or   
   dns contains "whatyouwant".)
2. What is the IP address of the computer I used to create the pcap? It is a private IP address, and all the rest of the traffic is from public IP addresses. (Google private ip address ranges if you've forgotten what the private addresses are.)
3. There are a lot of packets that Wireshark has marked as “TCP Dup ACK” and “TCP retransmission”. (In standard Wireshark, “TCP Dup ACK” and “TCP retransmission” are colored red on a black background, if that helps.)  
   A screen shot of a computer

   Description automatically generated  
   This was recorded on a (not too good) DSL connection. The page I went to, <https://en.wikipedia.org/wiki/Windows_XP>, downloaded slowly, but didn’t appear to have errors. What was going on with the “TCP Dup ACK” and “TCP retransmission” packets, and why did the page look ok?
4. What is the MAC address of my default gateway? Remember that all outgoing traffic from my computer (private IP address) to hosts on other networks is sent to the default gateway. Then, use a display filter to show only arp traffic (filter is arp,) and see if you can find the IP address of my default gateway (It was a LinkSys home router that I bought at Walmart.)
5. Find a three-way handshake in the packet capture. What is the frame number (left-most column, just so I know you found one) of one of the packets in the handshake?