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Week 2 Quiz

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1. Which function does NAT perform in a wireless router? 1 / 1 point

- NAT takes a source IP address and translates it to a default gateway address.
- NAT takes a local IP address and translates it to an internal source IP address.
- NAT takes a destination IP address and translates it to a global IP address.
- NAT takes an internal source IP address and translates it to a global IP address.

Correct
Because private addresses are not allowed on the Internet, an internal network deployed with private IP addresses will need a service for translating private addresses into unique public addresses so that local clients are able to communicate on the Internet. This service is Network Address Translation (NAT). NAT takes an internal private IP address and translates it to a global public IP address before the packet is sent.

2. What is the primary motivation for development of IPv6? 1 / 1 point

- security
- header format simplification
- expanded addressing capabilities
- addressing the need for simplification

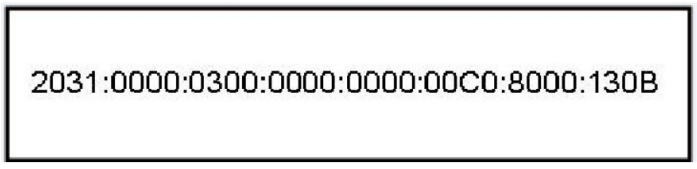
Correct
IPv4 addressing space is exhausted by the rapid growth of the Internet and the devices connected to the Internet. IPv6 expands the IP addressing space by increasing the address length from 32 bits to 128 bits, which should provide sufficient addresses for future Internet growth needs for many years to come.

3. How many binary bits exist within an IPv6 address? 1 / 1 point

- 32
- 48
- 64
- 128
- 256

Correct
IPv4 addressing space is exhausted by the rapid growth of the Internet and the devices connected to the Internet. IPv6 expands the IP addressing space by increasing the address length from 32 bits to 128 bits.

4. 1 / 1 point



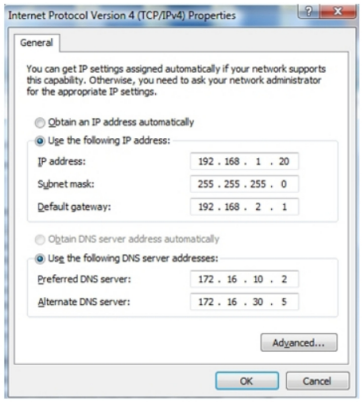
Refer to the exhibit. What is an equivalent representation of the full IPv6 address?

- 2031:300::C0:8:130B
- 2031:0:300::C0:8000:130B
- 2031:0:3::C0:8000:130B
- 2031::0300::C0:8::130B

✓ **Correct**

IPv6 addresses are 128 bits long and written as a string of hexadecimal values. There are two rules that help reduce the number of digits needed to represent an IPv6 address: Rule 1 - Omit leading zeros in any 16-bit section. Rule 2 - Omit one segment by a double colon (::). However, the double colon (::) can only be used once within an address.

5. 1 / 1 point



Refer to the exhibit. A technician has configured a user workstation with the information shown. Although the user can access all local LAN resources, the user cannot access any Internet sites by using either domain names or IP addresses. What is causing this failure?

- The workstation is not in the same network as the DNS servers.
- The wrong subnet mask was assigned to the workstation.
- The DNS server addresses are incorrect.
- ◉ The default gateway address is incorrect.

✓ **Correct**

The default gateway, usually a router, is needed when a host needs to access a remote network. In the IP configuration, the IP address is 192.168.1.20/24, which means that the network address is 192.168.1.0. The default gateway device should be in the same local network for it to be functional. Therefore, the default gateway address should be in the range of 192.168.1.0/24, except for 192.168.1.20.