We need to search for:

-Difference between router and switch devices.

| **Sr. No.** | **Key** | **Router** | **Switch** |
| --- | --- | --- | --- |
| 1 | Objective | Router main objective is to connect various networks. | Switch main objective is to connect various devices in a network. |
| 2 | Layer | Router works in Network Layer. | Switch works in Data Link Layer. |
| 3 | Usage | Router is used in LAN and MAN. | Switch is used only in LAN. |
| 4 | Data Format | Router sends data in form of packets. | Switch sends data in form of packets and frames. |
| 5 | NAT Compatability | Compatible with NAT. | Not compatible with NAT. |
| 6 | Type | Understand IP ,MAC | Understand MAC |

-What is the routing table?

A routing table is a set of rules, often viewed in table format that is used to determine where data packets traveling over an Internet Protocol (IP) network will be directed.

-Difference between public and private subnets

Public Subnets:

If a subnet's traffic is routed to an internet gateway, the subnet is known as a public subnet.

You should also state that the instances in the public subnet have publicly routable IP addresses. That means traffic to AND originating from the Internet can access instances in a public subnet (as long as NACLs, Security Groups, and WAF's allow it).

Private Subnets:

A private subnet can access the Internet by using a network address translation (NAT) gateway that resides in a public subnet

Instances in a private subnet don't have publicly routable IP addresses. That means traffic TO the internet is allowed if a NAT is setup for the private subnet. Traffic originating FROM the Internet cannot get to an instance on a private subnet.

-What is the difference between public and private IP?

| **Sr. No.** | **Key** | **Private IP Address** | **Public IP Address** |
| --- | --- | --- | --- |
| 1 | Scope | Private IP address scope is local to present network. | Public IP address scope is global. |
| 2 | Communication | Private IP Address is used to communicate within the network. | Public IP Address is used to communicate outside the network. |
| 3 | Format | Private IP Addresses differ in a uniform manner. | Public IP Addresses differ in varying range. |
| 4 | Provider | Local Network Operator creates private IP addresses using network operating system. | ISP, Internet Service Provider controls the public IP address. |
| 5 | Cost | Private IP Addresses are free of cost. | Public IP Address comes with a cost. |
| 6 | Locate | Private IP Address can be located using ipconfig command. | Public IP Address needs to be searched on search engine like google. |
| 7 | Range | Private IP Address range:  10.0.0.0 – 10.255.255.255,  172.16.0.0 – 172.31.255.255,  192.168.0.0 – 192.168.255.255 | Except private IP Addresses, rest IP addresses are public. |
| 8 | Example | Private IP Address is like 192.168.11.50. | Public IP Address is like 17.5.7.8. |

-Threat-mitigation methods

* Anti-malware – Malware detection
* Encryption
* Certificate authentication and encryption
* Firewalls
* Intrusion detection systems and intrusion prevention systems
* Security training and education