1. **Question 1:** Given the IP address 192.168.1.0 with a subnet mask of 255.255.255.0, how many usable hosts are there in this subnet?
   (Solution: 254)
2. **Question 2:** If you have the network 10.0.0.0/24, what is the broadcast address for this network?
   (Solution: 10.0.0.255)
3. **Question 3:** What is the subnet mask for a network with a prefix length of /26?
   (Solution: 255.255.255.192)
4. **Question 4:** How many subnets can be created from a Class C network with a default subnet mask of 255.255.255.0 when you borrow 2 bits for subnetting?
   (Solution: 4)
5. **Question 5:** Calculate the total number of hosts that can be accommodated in a subnet with a subnet mask of 255.255.255.128.
   (Solution: 126)
6. **Question 6:** An organization has been allocated the network 172.16.0.0/20. How many subnets can be created if it uses a subnet mask of /24?
   (Solution: 16)
7. **Question 7:** What is the first usable IP address in the subnet 192.168.10.64/26?
   (Solution: 192.168.10.65)
8. **Question 8:** Given the IP address 172.20.10.5 and a subnet mask of 255.255.255.240, what is the network address?
   (Solution: 172.20.10.0)
9. **Question 9:** A network administrator wants to create 8 subnets from the network 192.168.1.0. What subnet mask should they use?
   (Solution: 255.255.255.224)
10. **Question 10:** If a network has the IP address 10.0.0.0/8, and it wants to create supernets of size /12, how many supernets can be created?
    (Solution: 16)
11. **Question 11:** A company has been assigned the IP address block 10.1.0.0/16. If it needs to create 50 subnets, what subnet mask should it use?
    (Solution: /20)
12. **Question 12:** Given a subnet 192.168.100.0/22, calculate the range of usable IP addresses.
    (Solution: 192.168.100.1 to 192.168.103.254)
13. **Question 13:** A service provider has the IP block 172.16.0.0/12 and wants to allocate 200 subnets. What should be the subnet mask?
    (Solution: /20)
14. **Question 14:** You have the network 10.10.0.0/16. If you want to create supernets that combine this network with 10.10.1.0/24 and 10.10.2.0/24, what would be the supernet mask?
    (Solution: /22)

15. **Question 15:** A network with the address 192.168.0.0/24 needs to accommodate 200 hosts. What subnet mask is required to fulfill this requirement?
    (Solution: /23)

Variable Length Subnet Masking (VLSM) Questions

16. **Question 16:** You have the network 192.168.0.0/24 and need to create four subnets. How would you allocate the subnet masks if the subnets require 50, 30, 14, and 2 hosts respectively?
    (Solution: 192.168.0.0/26, 192.168.0.64/27, 192.168.0.96/28, 192.168.0.112/30)
17. **Question 17:** Given the IP range 10.0.0.0/16, if you need to create subnets for 100 hosts, 50 hosts, and 10 hosts, what subnet masks should be used?
    (Solution: /25 for 100 hosts, /26 for 50 hosts, /28 for 10 hosts)
18. **Question 18:** An organization has the IP address 172.20.0.0/20 and requires subnets for 60, 14, and 2 hosts. What subnet addresses would you assign?
    (Solution: 172.20.0.0/26 for 60 hosts, 172.20.0.64/28 for 14 hosts, 172.20.0.80/30 for 2 hosts)
19. **Question 19:** If you start with the network 192.168.10.0/24 and need to create three subnets for 20, 10, and 5 hosts, what will be the subnet addresses and masks?
    (Solution: 192.168.10.0/27 for 20 hosts, 192.168.10.32/28 for 10 hosts, 192.168.10.48/29 for 5 hosts)
20. **Question 20:** From the IP address 10.0.0.0/8, if you need to provide 8 subnets, each capable of hosting 1000 hosts, what will be the subnet masks used?
    (Solution: /22 for each subnet)