

Easy (Q1–Q10)

1. Which CIDR prefix gives **254 usable hosts** on a single IPv4 subnet?
A. /23
B. /24
C. /25
D. /26
2. What is the **broadcast address** for network 192.168.10.0/28?
A. 192.168.10.14
B. 192.168.10.15
C. 192.168.10.16
D. 192.168.10.13
3. In classful addressing, a default subnet mask for a **Class C** network is:
A. 255.0.0.0
B. 255.255.0.0
C. 255.255.255.0
D. 255.255.255.255
4. For network 10.0.0.0/30, how many **usable host addresses** are there?
A. 0
B. 1
C. 2
D. 4
5. Which wildcard mask corresponds to subnet mask 255.255.255.0?
A. 0.0.0.255
B. 0.0.255.0
C. 255.255.255.0
D. 0.0.0.0
6. The first usable host in 172.16.5.0/26 is:
A. 172.16.5.0
B. 172.16.5.1
C. 172.16.5.63
D. 172.16.5.64
7. Which CIDR prefix gives **8 usable hosts** per subnet?
A. /29
B. /28
C. /30
D. /27
8. Subnet zero refers to:
A. The last subnet when all host bits are 1
B. The first subnet where all subnet bits are zero
C. A subnet with zero hosts
D. A special multicast subnet
9. Network increment (subnet size) for /27 on last octet is:
A. 8
B. 16

- C. 32
 - D. 64
10. Which of these is the **network address** for IP 192.168.1.73/26?
- A. 192.168.1.64
 - B. 192.168.1.72
 - C. 192.168.1.128
 - D. 192.168.1.0
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Medium (Q11–Q25)

11. Given network 192.168.0.0/24, how many **/28 subnets** can you create?
- A. 4
 - B. 8
 - C. 16
 - D. 32
12. You need a subnet to support **500 hosts**. Which mask is the **smallest** valid (most specific) for that subnet?
- A. /23
 - B. /24
 - C. /22
 - D. /21
13. For IP 10.1.2.65/26, what is the **broadcast address**?
- A. 10.1.2.64
 - B. 10.1.2.127
 - C. 10.1.2.63
 - D. 10.1.2.128
14. You have 172.16.0.0/20. What is the **size** (number of addresses) of each /20 network?
- A. 256
 - B. 1024
 - C. 4096
 - D. 8192
15. Which mask will produce **4 equal subnets** from 192.0.2.0/24?
- A. /26
 - B. /25
 - C. /27
 - D. /28
16. In VLSM, when allocating multiple subnets from 10.0.0.0/24 for hosts [100, 50, 25, 10], what is the **/prefix** for the largest subnet (100 hosts)?
- A. /25
 - B. /26
 - C. /24
 - D. /27
17. Which of the following is a **valid** subnet mask (dotted decimal)?
- A. 255.255.255.192

- B. 255.255.255.1280
 - C. 255.255.0.32
 - D. 255.255.255.17
18. Given 192.168.5.128/25, which statement is true?
- A. Usable hosts = 128
 - B. Host range is 192.168.5.129 – 192.168.5.254
 - C. Broadcast = 192.168.5.255
 - D. Network address = 192.168.5.0
19. Route summarization: which summary can aggregate networks 10.10.4.0/24 and 10.10.5.0/24 into one less-specific route?
- A. 10.10.4.0/23
 - B. 10.10.4.0/22
 - C. 10.10.0.0/16
 - D. 10.10.4.0/24
20. For ACL wildcards, if you want to match any host in 192.168.100.0/26, the ACL wildcard should be:
- A. 0.0.0.63
 - B. 0.0.0.191
 - C. 0.0.0.127
 - D. 0.0.0.255
21. You split 10.0.0.0/16 into /20 subnets. How many /20 subnets are created?
- A. 8
 - B. 16
 - C. 32
 - D. 64
22. Which /prefix gives **30 usable hosts**?
- A. /27
 - B. /26
 - C. /25
 - D. /28
23. If you allocate 192.168.1.0/26 and 192.168.1.64/26 to two different sites, are they contiguous and can be summarized as 192.168.1.0/25?
- A. Yes, they are contiguous and summary is /25
 - B. No, because /26 cannot be summarized
 - C. Yes, but summary must be /24
 - D. No, because the subnets overlap
24. Which subnet mask is required to create **512 subnets** from a Class C (default /24) network?
- A. /33 (invalid)
 - B. /33 (invalid)
 - C. /33 (invalid)
 - D. Impossible — a Class C cannot be split into 512 subnets
25. For IP 198.51.100.130 with mask 255.255.255.240, the host belongs to which subnet?
- A. 198.51.100.128/28
 - B. 198.51.100.120/28

- C. 198.51.100.0/24
 - D. 198.51.100.136/28
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Hard (Q26–Q40)

26. You have 10.10.0.0/21 and need four equal-sized subnets. What is the new prefix for each subnet?
 - A. /23
 - B. /22
 - C. /24
 - D. /25
27. Given hosts requirements: Site A=200, Site B=60, Site C=12, Site D=6. You must allocate VLSM subnets from 172.16.0.0/24. Choose the smallest prefix for Site A (200 hosts).
 - A. /25
 - B. /24
 - C. /26
 - D. /27
28. You are summarizing 192.168.8.0/24 and 192.168.10.0/24. Can they be aggregated into a single contiguous summary without including other /24s?
 - A. Yes, into 192.168.8.0/23
 - B. No, because they are non-contiguous and summary would include 192.168.9.0/24 which is not present
 - C. Yes, into 192.168.8.0/22
 - D. Yes, into 192.168.8.0/24
29. For VLSM allocation from 10.0.0.0/24 you assigned /26 to Site 1 (62 hosts), /27 to Site 2 (30 hosts), /28 to Site 3 (14 hosts). What is the **next available** subnet after these allocations (first-fit, starting at low addresses)?
 - A. 10.0.0.192/26
 - B. 10.0.0.128/25
 - C. 10.0.0.176/28
 - D. 10.0.0.192/27
30. Given IP 203.0.113.77 and mask /29, what is the **network address** and **broadcast address**?
 - A. Network 203.0.113.72 — Broadcast 203.0.113.79
 - B. Network 203.0.113.76 — Broadcast 203.0.113.83
 - C. Network 203.0.113.72 — Broadcast 203.0.113.75
 - D. Network 203.0.113.64 — Broadcast 203.0.113.71
31. You must create point-to-point links using /30. From 192.0.2.0/24, what are the **first two** /30 subnets (network addresses)?
 - A. 192.0.2.0 and 192.0.2.4
 - B. 192.0.2.0 and 192.0.2.1
 - C. 192.0.2.0 and 192.0.2.2
 - D. 192.0.2.0 and 192.0.2.8

32. Which of these is **not** a valid aggregation (supernet) for 10.1.8.0/24, 10.1.9.0/24, 10.1.10.0/24, 10.1.11.0/24?
- A. 10.1.8.0/22
 - B. 10.1.8.0/23 (covers only first two)
 - C. 10.1.8.0/21 (covers more than necessary)
 - D. 10.1.8.0/24 (insufficient)
33. You receive a packet destined to 192.168.2.70 and your router has subnets 192.168.2.0/26 and 192.168.2.64/26 configured. Which interface will the router forward to?
- A. Interface with 192.168.2.0/26
 - B. Interface with 192.168.2.64/26
 - C. It will drop the packet because IP is broadcast
 - D. It will forward using default route
34. For a network 172.31.0.0/16, you need **variable** subnets: 1000 hosts, 400 hosts, 60 hosts, 12 hosts. Is 172.31.0.0/16 sufficient to allocate non-overlapping VLSM subnets for all?
- A. Yes, /16 provides enough addresses for those needs
 - B. No, /16 is too small
 - C. Yes, but only if you use /32 for hosts
 - D. No, because VLSM cannot be used on /16
35. You have 192.0.2.0/26 and you borrow 2 bits from host portion to create smaller subnets. What is the new prefix and how many subnets are created?
- A. /28 and 4 subnets
 - B. /28 and 16 subnets
 - C. /24 and 2 subnets
 - D. /30 and 8 subnets
36. In VLSM planning, which ordering strategy minimizes wasted addresses?
- A. Allocate smallest subnets first
 - B. Allocate randomly
 - C. Allocate largest subnets first (descending order)
 - D. Use equal-sized subnets only
37. You are given 203.0.113.0/24. You need to allocate subnets for 3 branches needing 120, 60 and 10 hosts. Using optimal VLSM, what prefix would you assign to the 60-host branch?
- A. /25
 - B. /26
 - C. /27
 - D. /28
38. Consider networks 10.5.0.0/16 split into /18 and /20. Which statement is true about address ranges?
- A. /18 contains 16384 addresses; /20 contains 4096 addresses.
 - B. /18 contains 4096 addresses; /20 contains 1024 addresses.
 - C. /18 contains 8192 addresses; /20 contains 2048 addresses.
 - D. /18 contains 65536 addresses; /20 contains 16384 addresses.
39. You are designing VLSM from 10.0.0.0/22 to provide subnets: 200, 60, 30, 6 hosts. Can you satisfy these from a single /22 without overlapping? (Assume usable host

counts.)

- A. Yes — /22 has 1022 usable hosts, enough for all subnets.
- B. No — /22 doesn't provide enough total addresses.
- C. Yes — but only if you use /23 for biggest and /25 for others.
- D. No — because /22 cannot be subdivided.

40. You have networks 198.51.100.0/25 and 198.51.100.128/25. Which summarized route correctly represents both without including IPs outside them?

- A. 198.51.100.0/24
- B. 198.51.100.0/25
- C. 198.51.100.0/25 and 198.51.100.128/25 (cannot be summarized)
- D. 198.51.100.0/25 with mask 255.255.255.128