

## Subnetting Sample-2

1. In a block of addresses, we know that the IP address of one host is 25.34.12.56/16. What is the first IP address in this block (This address is the Network Address)? What is the last IP address in this block (This is the direct broadcast address)?
2. An organization is granted the block 16.0.0.0/8. The administrator wants to create 500 "fixed-length" subnets. Find the Subnet Mask, The number of addresses in each subnet, the first and the last addresses in subnet #0 and the first and the last addresses in subnet #499.
3. An ISP is granted a block of addresses starting with 190.100.0.0/16. The ISP wants to distribute these blocks to three groups of customers as follows:
  - a. The first group has 64 customers, each needing 256 addresses
  - b. The second group has 128 customers, each needing 128 addresses
  - c. The third group has 128 customers, each needing 64 addresses.Design the sub-blocks (The network address and the broadcast address of the first and last customer in each group) and give the slash notation for each sub-block. Find how many IP addresses are still available after these allocations?
4. An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks to 2600 customers as follows:
  - a. The first group has 200 medium-size businesses, each needing 128 addresses
  - b. The second group has 400 small-size businesses, each needing 16 addresses
  - c. The third group has 2000 residential customers, each needing 4 addresses (This one is a bit tricky!)Design the sub-blocks (The network address and the broadcast address of the first and last customer in each group) and give the slash notation for each sub-block. Find how many IP addresses are still available after these allocations?
5. A University has 150 LANs with 100 hosts on each LAN. Suppose the University has one class B address. Design an appropriate subnet addressing scheme (i.e. choose an appropriate mask). Repeat using an appropriate classless addressing.
6. Perform Classless IP address aggregation (aggregation means building up the block size) on the following /24 addresses: 128.56.24.0/24, 128.56.25.0/24, 128.56.26.0/24 and 128.56.27.0/24. Hint, convert into binary and inspect the bits.