**1. Write the subnet, broadcast address and valid host range for the following:**
   A. 192.168.100.17, with 4 bits of subnetting
   B. 192.168.100.66, with 3 bits of subnetting
   C. 172.16.10.5 /20
   D. 172.16.10.33/255.255.252.0

   a) Mask is 255.255.255.240 The subnet is 192.168.100.16, broadcast is
      192.168.100.31 and the valid host range is from 192.168.100.17 to 30.

   b) Mask is 255.255.255.224. The subnet is 192.168.100.64, broadcast is
      192.168.100.95 and the valid host range is from 192.168.100.65 to 94.

   c) Mask is 20/ 255.255.240.0. The subnet is 172.16.0.0 broadcast is 172.16.15.255 and
      the valid host range is from 172.16.0.1 to 172.16.15.254

   d) Mask is 255.255.252.0. The subnet is 172.16.8.0 broadcast is 172.16.11.255 and the
      valid host range is from 172.16.8.1 to 172.16.11.254


**2. You have been asked to create a subnet that supports 126 hosts. What subnet mask is the most efficient one?**

255.255.255.128


**3. Given the following:**

a. Network address: 192.168.10.0
b. Subnet mask: 255.255.255.192
How many subnets are there? How many hosts? What are the valid subnets?

There will be 4 subnets. 64 hosts
   1. 192.168.10.0
   2. 192.168.10.64
   3. 192.168.10.128
   4. 192.168.10.192

**5. XYZ Company would like to subnet its network so that there are five separate subnets. They will need 25 computers in each subnet. Complete the following table: NOTE: If you create more than five subnets, list the extra ones too.**

| Subnet | Network address | Host addresses | Boradcast address |
|---|---|---|---|
| Subnet mask: 255.255.255.224 | | | |
| First subnet | 192.168.162.0 | 192.168.162.1 - 192.168.162.30 | 192.168.162.31 |
| Second subnet | 192.168.162.32 | 192.168.162.33 - 192.168.162.62 | 192.168.162.63 |
| Third subnet | 192.168.162.64 | 192.168.162.65 - 192.168.162.94 | 192.168.162.95 |
| Fourth subnet | 192.168.162.96 | 192.168.162.97 - 192.168.162.126 | 192.168.162.127 |
| Fifth subnet | 192.168.162.128 | 192.168.162.129 - 192.168.162.158 | 192.168.162.159 |
| Sixth subnet | 192.168.162.160 | 192.168.162.161 - 192.168.162.190 | 192.168.162.191 |
| Seventh subnet | 192.168.162.192 | 192.168.162.193 - 192.168.162.222 | 192.168.162.223 |
| Eighth subnet | 192.168.162.224 | 192.168.162.225 - 192.168.162.254 | 192.168.162.255 |