Subnetting Practice

NOTE: Wire Address = Subnet ID

1. Given a host address of 152.202.34.4 and a subnet mask of 255.255.254.0, find the directed broadcast address and the wire address of the subnetwork to which this host belongs.

   directed broadcast address = 152.202.35.255
   wire address = 152.202.34.0

2. Given the subnet mask of 255.255.254.0 and a host address of 152.202.64.51, find the subnetwork number to which this host belongs.

   host belongs to subnet 32 (7 bits borrowed)

3. Given a host address of 132.20.0.193 and that you borrowed 11 bits, find the subnet mask and the wire address of the subnet to which this host belongs.

   SM = 255.255.255.224
   wire address = 132.20.0.192

4. Given the subnet mask of 255.255.128.0 and a host address of 32.20.130.0, find:
   a. the number of bits borrowed — **9 bits borrowed**
   b. the number of subnets in this arrangement — **512 subnets**
   c. the subnet number to which this host belongs — **subnet 41 (00101001)**
   d. the directed broadcast address for this subnet — **32.20.255.255**
   e. the wire address of the native network — **32.0.0.0**
   f. the class of the native network — **Class A**

5. Given the subnet address of 210.10.10.208 and the subnet mask with 29 bits, find the number of bits borrowed and the subnet's broadcast address.

   5 bits borrowed
   directed broadcast address = 210.10.10.215

6. Given the subnet mask of 255.255.255.224 and the host address of 202.20.30.72, find the directed broadcast address for the subnet to which the host belongs.

   directed broadcast address = 202.20.30.95

7. Given 210.10.10.115 and a subnet mask with 28 bits, find the subnet number and the wire address for the subnet to which the host belongs.

   subnet number 7
   wire address = 210.10.10.112

8. Given the subnet address of 202.22.22.160 and a subnet mask of 27 bits, find the bits borrowed and the subnet number.

   Bits borrowed = 3 **subnet = 101*****
   Subnet number = 5

9. Given the subnet mask of 255.255.255.240 and the host address of 220.20.20.97, specify the number of bits borrowed and the corresponding subnetwork wire address and directed broadcast address.

   Bits borrowed = 4 **(subnet number 6)**
   ID = 220.20.20.96
   BC = 220.20.20.111

10. Given the license 190.90.0.0 and the fact that you have 2046 subnets created, find the number of bits borrowed, and the following information about subnet number 100: wire address, directed broadcast address, and valid range for host addresses.

    Bits borrowed = 11
    ID = 190.90.12.128
    BC = 190.90.12.159
    Usable hosts = 190.90.12.129 to 190.90.12.158

11. Given the subnet mask of 255.255.252.0 how many hosts can be accommodated? If a host IP address of 116.77.88.99 is associated with this mask, how many bits were borrowed?

    1022 hosts possible (10 host bits)
    Class A address => Bits borrowed = 14

12. Given the host address of 147.47.0.12 and a subnet mask with 29 bits, find the number of bits borrowed, the subnet number and the directed broadcast and wire addresses.

    Bits borrowed = 13
    Subnet number = 1
    ID = 147.47.0.8
    BC = 147.47.0.15

13. Given a directed broadcast address of 120.223.255.255 and a subnet mask of 255.224.0.0, find the number of bits borrowed, subnet's wire address, and the valid range for host addresses.

    Bits borrowed = 3
    ID = 120.192.0.0
    Usable hosts = 120.192.0.1 to 120.223.255.254

14. Given a host with IP 210.10.10.114 and a subnet mask with 30 bits, find the subnet number and the wire address for the subnet to which the host belongs.

    ID = 210.10.10.112
    Subnet number = 28