

## Assignment 9

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**1. What Is The Subnetwork Address? If The Destination Address Is 19.30.80.5 And The Mask Is 255.255.192.0**

Solution:

19.30.80.5

255.255.192.0

convert to binary and apply AND operation on bit by bit

00010011.00011110.01010000.00000101

11111111.11111111.11000000.00000000

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00010011.00011110.01000000.00000000 --> 19.30.64.0 in decimal

19.30.64.0 is the network ID of the subnet and  $2^{14}=16384$  hosts in this subnet so the endpoint will be 19.30.127.255.

**2. A Company Is Granted The Site Address 181.56.0.0 (Class B). The Company Needs 1000 Subnets. Design The Subnets.**

**Solution:**

The company needs 1000 subnets.

This number is not a power of 2. The next number that is a power of 2 is 1024 (2<sup>10</sup>).

We need 10 more 1s in the subnet mask.

- The total number of 1s in the subnet mask is 26 (16 + 10).
- The total number of 0s is 6 (32 - 26).

The mask is 11111111 11111111 11111111 11000000 or 255.255.255.192

The number of subnets is 1024.

- The number of addresses in each subnet is 2<sup>6</sup> (6 is the number of 0s) or 64.

