**Hint**: Remember that the number of host bits (to the power of 2) defines the number of hosts per subnet (minus 2), and the number of subnet bits (to the power of two) defines the number of subnets. The subnet bits (shown in bold) are the bits that have been borrowed beyond the original network mask of /24. The /24 is the prefix notation and corresponds to a dotted decimal mask of 255.255.255.0.

1)      (/25) 11111111.11111111.11111111.**1**0000000

Dotted decimal subnet mask equivalent:

**255.255.255.128**

Number of subnets? Number of hosts?

**Two subnets (2^1) and 128 hosts (2^7) – 2 = 126 hosts per subnet**

2)      (/26) 11111111.11111111.11111111.**11**000000

Dotted decimal subnet mask equivalent:

**255.255.255.192**

Number of subnets? Number of hosts?

**Four subnets (2^2) and 64 hosts (2^6) – 2 = 62 hosts per subnet**

3)      (/27) 11111111.11111111.11111111.**111**00000

Dotted decimal subnet mask equivalent:

***Type yor answers here.***

**255.255.255.224**

Number of subnets? Number of hosts?

**Eight subnets (2^3) and 32 hosts (2^5) – 2 = 30 hosts per subnet**

4)      (/28) 11111111.11111111.11111111.**1111**0000

Dotted decimal subnet mask equivalent:

**255.255.255.240**

Number of subnets? Number of hosts?

**Sixteen subnets (2^4) and 16 hosts (2^4) – 2 = 14 hosts per subnet**

5)      (/29) 11111111.11111111.11111111.**11111**000

Dotted decimal subnet mask equivalent:

**255.255.255.248**

Number of subnets? Number of hosts?

**Thirty two subnets (2^5) and 8 hosts (2^3) – 2 = 6 hosts per subnet**

6)      (/30) 11111111.11111111.11111111.**111111**00

Dotted decimal subnet mask equivalent:

**255.255.255.252**

Number of subnets? Number of hosts?

**Sixty four subnets (2^6) and 4 hosts (2^2) – 2 = 2 hosts per subnet**

Considering your answers above, which subnet masks meet the required number of minimum host addresses?

**/25, /26**

Considering your answers above, which subnet masks meets the minimum number of subnets required?

**/26, /27, /28, /29, /30 will give the required number of subnets.**

Considering your answers above, which subnet mask meets both the required minimum number of hosts and the minimum number of subnets required?

**/26 will give you the four subnets that are required, and 62 hosts per subnet, which is greater than the 50 hosts required for the first subnet.**