Subnetting Classful Class C Activity

Scenario:

You are given a Class C IP address: 192.168.10.0/24. You need to create multiple subnets from this network to accommodate various departments in your organization.

Task 1: Subnet Creation

1. You need to divide the network into 4 subnets. How many bits will you borrow from the host portion?

2. After borrowing bits, what will be your new subnet mask? Write your answer in both dotted-decimal notation and CIDR notation.

Task 2: Subnet Ranges

1. Calculate the number of usable hosts per subnet.

2. Identify the network address, first usable IP address, last usable IP address, and broadcast address for each of the 4 subnets.

Subnet #	*Network Address*	*First Usable IP*	*Last Usable IP*

Task 3: Subnetting with More Hosts

1. If you need to create 2 subnets that can each handle 90 hosts, how many bits will you borrow from the host portion?

2. What will be the new subnet mask?

3. Calculate the number of subnets and the usable hosts per subnet for this new scenario.

Task 4: Reflection Questions

1. Why do we subtract 2 from the total number of IP addresses in a subnet?

2. Explain the importance of subnetting in network design.