Lab 10.3.5b Subnetting a Class A Network – Instructor Version

Objective

Analyze a Class A network address with the number of network bits specified in order to determine the following:

- Subnet mask
- Number of subnets
- Hosts per subnet
- Information about specific subnets

Background / Preparation

This is a written exercise and is to be performed without the aid of an electronic calculator.

Step 1 Given a Class A network address of 10.0.0.0 / 24 answer the following questions

How many bits were borrowed from the host portion of this address? 16

What is the subnet mask for this network?

1. Dotted decimal 255.255.255.0
2. Binary 11111111.11111111.11111111.00000000

How many usable subnetworks are there? 2^{16}-2 or 65534

How many usable hosts are there per subnet? 2^{8}-2 or 254

What is the host range for usable subnet sixteen? 10.0.16.1-10.0.16.254

What is the network address for usable subnet sixteen? 10.0.16.0

What is the broadcast address for usable subnet sixteen? 10.0.16.255

What is the broadcast address for the last usable subnet? 10.255.254.255

What is the broadcast address for the major network? 10.255.255.255

