Exercise 1: Subnet a Network

- Break up 192.168.1.0/24 into 4 smaller subnets, with an equal number of addresses in each subnet.

Exercise 2: Calculate the Number of Hosts

1. How many hosts are in a /29 network?
2. How many hosts are in a /10 network?

Exercise 3: Design Subnets of Different Sizes

- Divide 172.16.0.0/16 into 4 smaller subnets. Two subnets must support 1000 devices each. Two subnets must support 400 devices each. Use the smallest possible subnets to accomplish these goals.

Answer Key:

Question 1:
The network 192.168.1.0/24 has a CIDR notation of /24, which means that the first 24 bits of the address are the network bits and the last 8 bits are the host bits. This gives us 256 possible hosts in the network.

To break up the network into 4 smaller subnets, we need to use a CIDR notation of /26. This will give us a subnet mask of 255.255.255.192 and 64 possible hosts per subnet.

Here is a table of all the subnets:

Subnet	CIDR	Network Address
1	/26	192.168.1.0	192.168.1.63
2	/26	192.168.1.64	192.168.1.127
3	/26	192.168.1.128	192.168.1.191
4	/26	192.168.1.192	192.168.1.255

Question 3:
172.16.0.0/22

- IPs in Range: 1,024
- CIDR IP Range172.16.0.0 - 172.16.3.255

172.16.4.0/22

- IPs in Range: 1,024
- CIDR IP Range172.16.4.0 - 172.16.7.255

172.16.8.0/23

- IPs in Range: 512
- CIDR IP Range172.16.8.0 - 172.16.9.255

172.16.10.0/23

- IPs in Range: 512
- CIDR IP Range172.16.10.0 - 172.16.11.255