INSTRUCTOR ALTON

Visualizing Subnetting a Class C Network #2

Details & Requirements
- Network Address: 192.168.1.0
- Default Subnet Mask: 255.255.255.0
- Requires 4 Subnets

How many host bit do we need to borrow?
- 2 host bit, $2^2 = 4$ Subnets

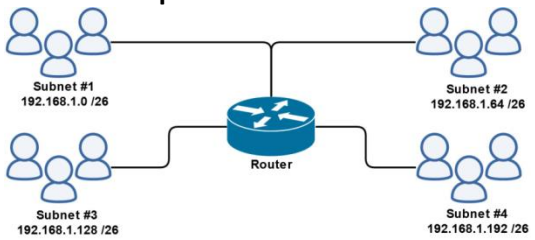
How many addresses hosts per subnet?
- 6 host bits left, $2^6 = 64$ Addresses / Subnet
- $2^6 - 1 = 62$ Addresses / Subnet

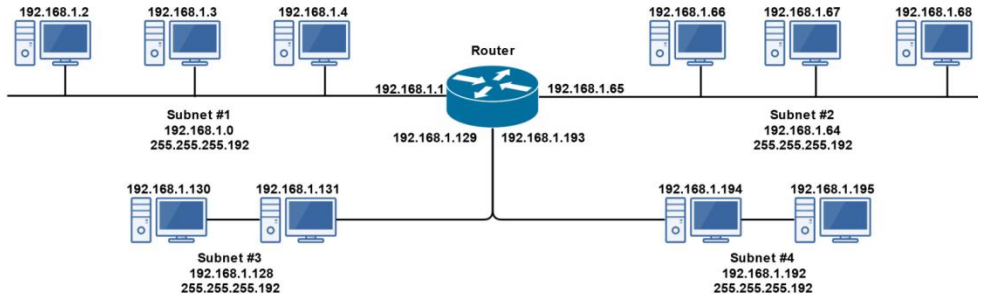
What are the valid subnets?
- 192.168.1.**0**, 192.168.1.**64**, 192.168.1.**128**, 192.168.1.**192**

New Subnet Mask?
- 11111111.11111111.11111111.**11**000000
- 255.255.255.192 or /26

Subnet	Network Address	Host IP Addresses	Broadcast Address
1	.0	.1 to .62	.63
2	.64	.65 to .126	.127
3	.128	.129 to .190	.191
4	.192	.193 to .254	.255

Network Simplified & Detail Views





Default Class C Network (8 Host Bits)

2 Host Bits Borrowed = 2^2 = Subnetted into 4 Subnets

1	2	3	4

CLASS C POSSIBLE SUBNET MASKS

Binary (N.N.N.H)	Decimal	CIDR	# Subnets (2^x)	Block Size (2^y)	# Hosts (2^y - 2)
N.N.N.00000000	255.255.255.0	/24	$2^0 = 1$	$2^8 = 256$	$2^8 - 2 = 254$
N.N.N.10000000	255.255.255.128	/25	$2^1 = 2$	$2^7 = 128$	$2^7 - 2 = 126$
N.N.N.11000000	255.255.255.192	/26	$2^2 = 4$	$2^6 = 64$	$2^6 - 2 = 62$
N.N.N.11100000	255.255.255.224	/27	$2^3 = 8$	$2^5 = 32$	$2^5 - 2 = 30$
N.N.N.11110000	255.255.255.240	/28	$2^4 = 16$	$2^4 = 16$	$2^4 - 2 = 14$
N.N.N.11111000	255.255.255.248	/29	$2^5 = 32$	$2^3 = 8$	$2^3 - 2 = 6$
N.N.N.11111100	255.255.255.252	/30	$2^6 = 64$	$2^2 = 4$	$2^2 - 2 = 2$