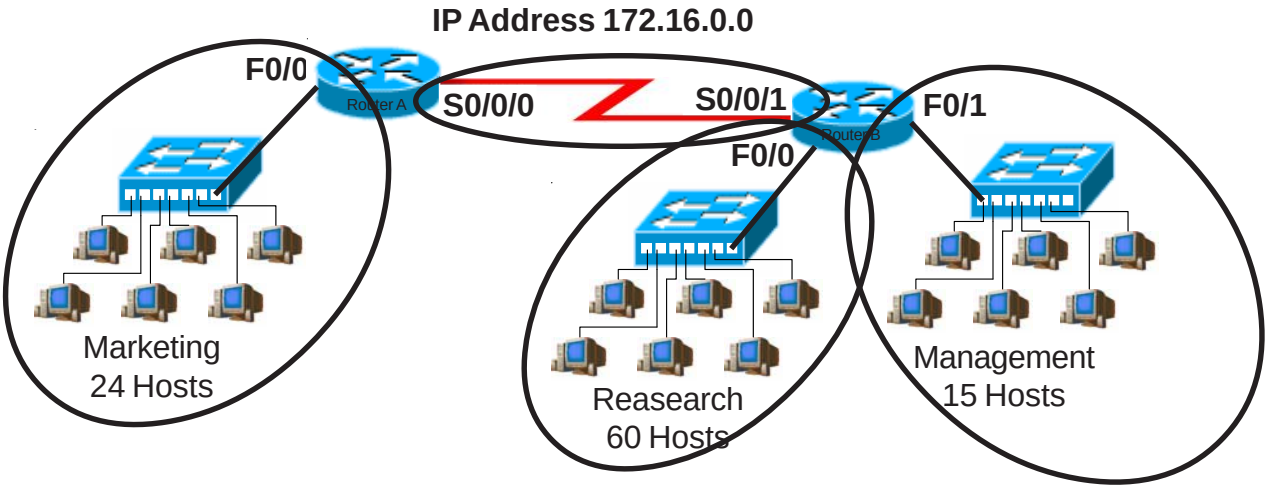
Practical Subnetting 1

Based on the information in the graphic shown, design a network addressing scheme that will supply the **minimum number of subnets**, and allow enough extra subnets and hosts for 100% growth in both areas. Circle each subnet on the graphic and answer the questions below.



Address class	B
Custom subnet mask	255.255.224.0
Minimum number of subnets needed	4
Extra subnets required for 100% growth (Round up to the next whole number)	+ 4
Total number of subnets needed	= 8
Number of host addresses in the largest subnet group	60
Number of addresses needed for 100% growth in the largest subnet (Round up to the next whole number)	+ 60
Total number of address needed for the largest subnet	= 120

Start with the first subnet and arrange your sub-networks from the largest group to the smallest.

IP address range for Research	172.16.0.0 to 172.31.255
IP address range for Marketing	172.16.32.0 to 172.63.255
IP address range for Management	172.16.64.0 to 172.95.255
IP address range for Router A to Router B serial connection	172.16.96.0 to 172.127.255

Show your work for Practical Subnetting 1 in the space below.

Number of Hosts - 65,536 32,768 16,384 8,192 4,096 2,048 1,024 512

Number of Subnets - 2 4 8 16 32 64 128 256.

Binary values - 128 64 32 16 8 4 2 1 . 128 64 32 16 8 4 2 1

172 . 16 . 0 0 0 0 0 . 0 0 0 0 0 0 0 0

(1)	0	172.16.0.0	to 172.16.31.255
(2)	1	172.16.32.0	to 172.16.63.255
(3)	1 0	172.16.64.0	to 172.16.95.255
(4)	1 1	172.16.96.0	to 172.16.127.255
(5)	1 0 0	172.16.128.0	to 172.16.159.255
(6)	1 0 1	172.16.160.0	to 172.16.191.255
(7)	1 1 0	172.16.192.0	to 172.16.223.255
(8)	1 1 1	172.16.224.0	to 172.16.255.255

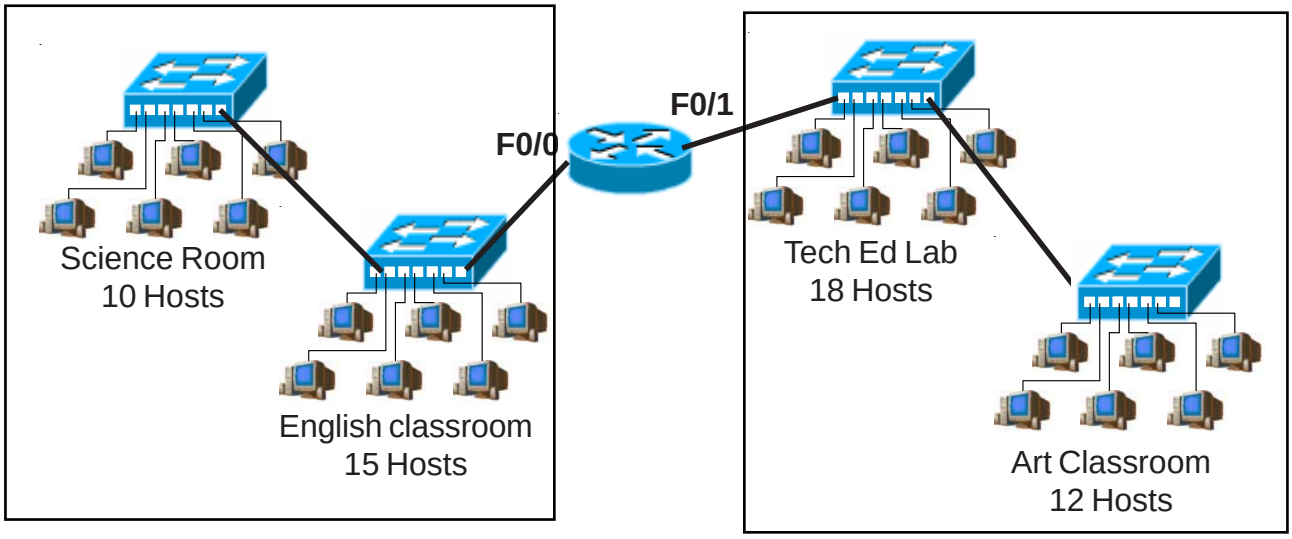
4 × 10 = 40

60 × 10 = 600

Practical Subnetting 5

Based on the information in the graphic shown, design a network addressing scheme that will supply the **minimum number of hosts per subnet**, and allow enough extra subnets and hosts for 100% growth in all areas. Circle each subnet on the graphic and answer the questions below.

IP Address 210.15.10.0



Address class C

Custom subnet mask 255.255.255.192

Minimum number of subnets needed 2

Extra subnets required for 100% growth + 2
(Round up to the next whole number)

Total number of subnets needed = 4

Number of host addresses in the largest subnet group 30

Number of addresses needed for 100% growth in the largest subnet + 30
(Round up to the next whole number)

Total number of address needed for the largest subnet = 60

Start with the first subnet and arrange your sub-networks from the largest group to the smallest.

IP address range for Router F0/0 Port 210.15.10.0 - 210.15.10.63

IP address range for Router F0/1 Port 210.15.10.64 - 210.15.10.127

Show your work for Problem 5 in the space below.