# Online Gaming

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## Custom Subnet Masks

### Problem 7 – *Rough*

1) B                                    3)                          5) 16        7) 11
2) 255.255.0.0        4) 2048        6) 14

$2^S = 2000$
$S = \log(2000) / \log(2)$
$S = 11$

$2^h = 15$
$h = \log(15) / \log(2)$
$h = 4$

$2^{11} = 2048$

$2^4 = 16$

∴  178.100.0.0
    255.255.0.0

1111 1111 . 1111 1111 . 1111 1110 0000

### Problem 7 – *Answers*

Problem 7

B

255.255.0.0

~~255.255.255.00~~ 255.255.255.224

2048

16

14

11

Address:  178.100.0.0

Default Subnet:  255.255.0.0

Bits borrowed: 11

1111 1111 . 1111 1111 . 1111 1111 . 111 00000
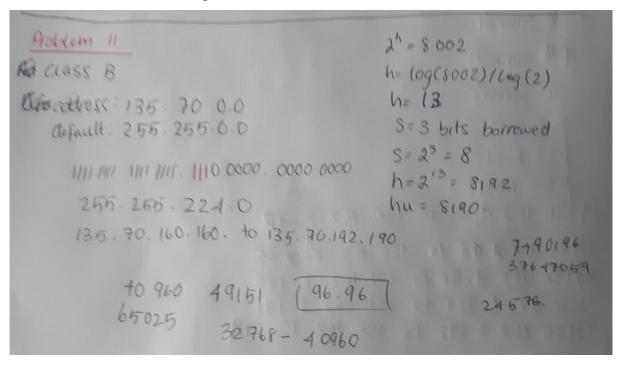
255 . 255 . 255 . 224

## Problem 15 – *Rough*

$2^n = 1000$

$n = \log(1000) / \log(2)$

$n = 10$ bit borrowed

$2^{10} = 1024$ subnets

$\cdot 1111 \ 1111 . 1100 \ 00$

$255 \qquad 128 + 64$

$\cdot \qquad 192$

$\cancel{2^3} = 2^n \div 2 = 60$

$n = \left(\log(60) / \log 2\right) - 2$

$n = 6$ bits for host.

$2^6 - 2 = 62$ usable hosts

## Problem 15 – *Answers*

problem 15

B

255.255.0.0

255.255.255.192

1024

64

62

10

## Subnetting

### Problem 11 – *Rough*

Problem 11

A Class B

IP address: 135.70.0.0
default: 255.255.0.0

1111 1111. 1111 1111. 1110 0000. 0000 0000
255. 255. 224.0
135.70.160.160. to 135.70.192.190

40 960    49151    96.96
65025
32768 - 40960

$2^n = 8002$
$h = (\log(8002))/\log(2)$
$h = 13$
$S = 3$ bits borrowed
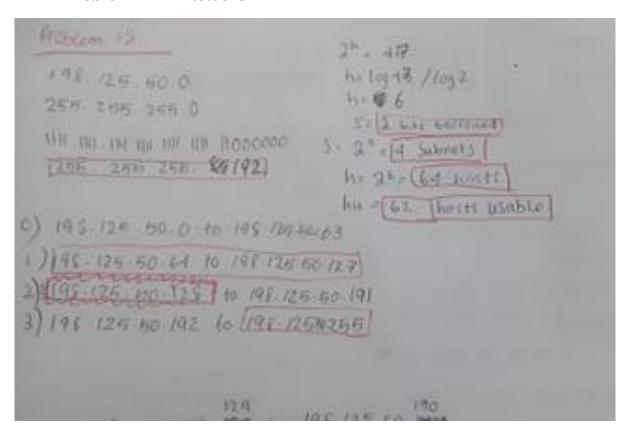$S = 2^3 = 8$
$h = 2^{13} = 8192$
$hu = 8190$.

7190196
37647069
24576.

### Problem 11 – *Answers*

Problem 11
B
255.255.00
255.255.224.0
8
8192
8190
3
135.70.160.160    to    135.70.192.191
135.70.192.192
135.70.96.95
135.70.128.129 to 135.70.160.159.

## Problem 12 – *Answers*

Problem 12

198.125.60.0

255.295.255.0

||||| |||| ||| ||| ||| ||| 11000000
[256   256   256.  64 (92)

2^h . 47

h: log 47 / log 2

h: 6

s: [2 6.41 6.411.0.48]

s: 2^? = [4 Subnets]

h = 2^6 = [64 hosts]

hu = [62 hosts usable]

c)  198.125.60.0 to 198.125.60.63

1) 198.125.60.64  to 198.125.60.127

2) 198.125.60.128  to 198.125.60.191

3) 198.125.60.192 to [198.125.60.255]

129                    190

**Practical Subnetting**

**Problem 4 – *Answers***

Practical Subnetting 4
_____

B

255.255.224.0 => 1110 0000 = 224

5 Subnets

4⁹ Subnets

9 Subnets

325 hosts

228 hosts

553 hosts

0) 135.162.0.0 to 135.162.2.12.

1) 135.162.2.43 to 135.162. 4. 85

2) 135.162.4.86 to 135.162.6.128

3) 135.162.6.129 to 135.162.8.171

4) 135.162.8.172 to 135.162.10.214

**Problem 6 - *Answers***

Practical Subnetting 6

A

4 bits borrowed => 1114 0000
255.240.0.0.

7

12 Subnets at 20%
89 total Subnets

320 hosts
64 needed hosts
384 total hosts

0) 10.0.0.0 to 10.1.128.0
1) 10.1.129.0 to 10.3.2.0
2) 10.3.3.0 to 10.4.131.0
3) 10.4.132.0 to 10.6.5.0
4) 10.6.6.0 to 10.7.134.0
5) 10.7.155.0 to 10.9.8.0
6) 10.9.9.0 to 10.10.137.0.