1

148.32.127.0 /20

$0 \times 2^0 = 0$
$0 \times 2^1 = 0$
$0 \times 2^2 = 0$
$0 \times 2^3 = 0$
$1 \times 2^4 = 16$
$1 \times 2^5 = 32$
$1 \times 2^6 = 64$
$1 \times 2^7 = 128$
240

- Mask: 11111111.11111111.11110000.00000000
  255 . 255 . 240 . 0

- IP: 148.32.127.0

	11111111.0
ID:	.01110000.0
BR:	.01111111.1

$127 - 64 = 63$ → 1
$63 - 32 = 31$ → 1
$31 - 16 = 15$ → 1
$15 - 8 = 7$ → 1
$7 - 4 = 3$ → 1
$3 - 2 = 1$ → 1
$1 - 1 = 0$ → 1

$0 \cdot 0 = 0$ → 0

- Mask 255.255.240.0
- IP: 148.32.112.0
- BR: 148.32.127.255
- 1H: 148.32.112.1
- UR: 148.32.127.254

ID
0×2^0
0×2^1
0×2^2
0×2^3
$1 \times 2^4 = 16$
$1 \times 2^5 = 32$
$1 \times 2^6 = 64$
0×2^7
112

BR
$1 \times 2^0 = 1$
$1 \times 2^1 = 2$
$1 \times 2^2 = 4$
$1 \times 2^3 = 8$
$1 \times 2^4 = 16$
$1 \times 2^5 = 32$
$1 \times 2^6 = 64$
0×2^7
127

② 201.34.32.4/26

/26 = 11111111.11111111.11111111.11000000

Mask: 255. 255. 255. 192

ID actual: 201.34.32.4 : x4 = 00000100

- Mask: 255.255.255.192 — 11111 00000
- ID: 201.34.32.0
- SR: 201.34.32.63
- 1H: 201.34.32.1
- UH: 201.34.32.62

③ 228.152.128.8/27

/27 = 11111111.11111111.11111111.11100000

255. 255. 255. 224

IP actual: 228.152.128.8

8 = 0000 1000

11111 00000

- ID: 228.152.128.0
- BR: 228.152.128.31
- 1H: 228.152.128.1
- UH: 228.152.128.30
- Mask: 255.255.255.224

II

1) 168.135.34.0 /24

/24 = 11111111.11111111.11111111.00000000

$2^n - 2 \not\parallel 24$ ✗

$2^5 - 2 \not\parallel 24$

$30 \not\parallel 24$

120
60
24
10

$2^x \not\parallel 4$ $x = 2$

$2^2 \not\parallel 4$

$4 \not\parallel 4$

① $2^n - 2 \not\parallel 120$

$2^7 - 2 \not\parallel 120$

$128 - 2 \not\parallel 120$

$126 \not\parallel 120$

② ∴ (32 − 24) − 7 = 1

11111111.11111111.11111111.10000000

255 . 255 . 255 . 127

② $2^n - 2 \not\parallel 60$

$2^6 - 2 \not\parallel 60$

$62 \not\parallel 6$

③ ∴ (32 − 24) − 6 = 2

11111111.11111111.11111111.11000000

255 . 255 . 255 . 192

③ $2^n - 2 \not\parallel 24$

$2^5 - 2 \not\parallel 24$

$30 \not\parallel 24$

④ ∴ (32 − 24) − 5 = 3

11111111.11111111.11111111.11100000

255 255 255 . 224

④ $2^n - 2 \not\parallel 10$

$2^3 - 2 \not\parallel 10$

$8 \not\parallel 10$

④ ∴ (32 − 24) − 3 = 5

11111111.11111111.11111111.11111000

255 . 255 . 255 . 248

III

a) ① Ctd subredes: 8. $2^3 = 8$

② Se piden 3 bit prestados. $3 = 8$

③ Por sub Red hay 14 Host disp. $2^4 - 2 = 14$

b) ④ /28 = 11111111.11111111.11111111.11110000

⑤ Los sbredes disp es igual a 0.

	ID	1H	UH	BR
0	146.36.192.0	.1	.30	.31
1	.32	.33	.62	.63
2	.64	.65	.95	.96
3	.96	.97	.126	.127
4	.128	.128	.158	.159
5	.160	.161	.190	.191
6	.192	.193	.222	.223
7	.224	.225	.255	.254
8				
9				
10				
11				
12				
13				

.0 = 000 0000
.32 = 001
.64 = 010
.96 = 011
.128 = 100
.160 = 101
.192 = 110
.224 = 111