

Exercícios sobre sub-endereçamento

1) b, c, d

2) $192 \cdot 168 \cdot 14 \cdot x \rightarrow$ Classe C, logo 124

NET ID	Subnet ID	Host ID	
192.168.14	128 64 32 16	8 4 2 1	$24+4=28$, então d/c 128
8	0 0 0 0	1 0 0 0	
16	0 0 0 1	0 0 0 0	
24	0 0 0 1	1 0 0 0	
32	0 0 1 0	0 0 0 0	
148	1 0 0 1	0 1 0 0	
208	1 1 0 1	0 0 0 0	

b, d, f

3) $255 \cdot 255 \cdot 224 \cdot 0$

$$\begin{array}{cccc} \overbrace{\text{11111111}}^{\text{255}} & + & \overbrace{\text{11111111}}^{\text{255}} & + \overbrace{\text{11100000}}^{\text{224}} = 19 \\ \text{255} & & \text{255} & \\ \hline & & & \end{array}$$

→ 119

Sendo Classe B, pegamos nos 2 primeiros octetos

124.78	128 64 32	16 8 4 2 1	128 64 32 16 8 4 2 1	✓
125.67	0 0 1	0 0 0 0 0	0 0 0 0 0 0 0 0	✗
123.78	1 0 1	0 0 0 0 0	0 0 0 0 0 0 0 0	✗
126.78	0 0 1	1 0 0 0 0	0 0 0 0 0 0 0 0	✗
176.55	0 1 1	0 0 0 0 0	0 0 0 0 0 0 0 0	✓
186.211	0 1 1	0 0 1 0 0	0 0 0 0 0 0 0 0	✓

a, d, f

4)

<u>128</u>	<u>64</u>	<u>32</u>	<u>16</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>1</u>
0	1	1	0	1	1	1	0
1	0	0	0	0	0	1	1
0	0	0	1	1	1	0	1
1	1	x	x	x	x	x	x
<u>1</u>	<u>1</u>	<u>1</u>	x	x	x	x	x

→ Classe A
→ Classe B
→ Classe A
→ Classe C
→ Classe D

5) 255.255.240.0 → 116 ips omitted
porque é classe B,
mas tem .240, logo
fica

255.255.240.0 /20

Para obtermos o nº máximo

de subredes fezemos $2^4 = 16$ e depois

fezemos $2^4 = \underline{\underline{16}}$ → Logo temos no máximo 16 subredes

6) 198.197.196.16 /30

255.255.255. $\frac{128}{1}$ $\frac{64}{1}$ $\frac{32}{1}$ $\frac{16}{1}$ $\frac{8}{1}$ $\frac{4}{1}$ $\frac{2}{1}$ $\frac{1}{1}$ $\left| \begin{array}{l} 2 \\ 0 \\ 0 \end{array} \right.$ 252

255.255.255.252 /30

O nº de endereços úteis é sempre $\left[\frac{2^{n \text{ bits da másc}} - 2}{\text{ }} \right]$

Tendo 32 bits num IP e a máscara é /30, logo o nº de endereços úteis é de 2 bits, então o gálico = fórmula → $(32-30)$
 $2 - 2 = \underline{\underline{2}}$

7) $172 \cdot 16 \cdot 2 \cdot 160 \rightarrow$ Classe B $\rightarrow 110$ por default

$255 \cdot 255 \cdot 255 \cdot 192$ ou /26

NET ID	Sub NET	Host ID
$172 \cdot 16 \cdot 2$		
160	$\begin{array}{ c c } \hline 128 & 64 \\ \hline 1 & 0 \\ \hline \end{array}$	$\begin{array}{ c c c c c c c c } \hline 32 & 16 & 8 & 4 & 2 & 1 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline \end{array}$

Portaria $\hat{=}$ $172 \cdot 16 \cdot 2 \cdot 128$

8) $132 \cdot 15 \cdot 136 \cdot 2 / 18 \rightarrow$ Classe B
 \rightarrow por default é 110

$132 \cdot 15$	$\begin{array}{ c c } \hline 128 & 64 \\ \hline 1 & 0 \\ \hline \end{array}$	$\begin{array}{ c c c c c c c c } \hline 32 & 16 & 8 & 4 & 2 & 1 \\ \hline 0 & 0 & 1 & 0 & 0 & 0 \\ \hline \end{array}$
130		

$255 \cdot 255 \cdot 192 \cdot 0$

Portaria $\hat{=}$ $132 \cdot 15 \cdot 128 \cdot 0$

9) $194 \cdot 65 \cdot 52 \cdot 0 / 24$

Capacidade até 16 máquinas

$n \rightarrow n^{\circ}$ de bits do Host ID

$$2 - 2 \geq 16$$

$$\hookrightarrow 2^5 - 2 = \underline{\underline{30}}$$

Então NET ID possui $32 - 5 = \underline{\underline{27}}$

Máscara de Rede $\rightarrow 255 \cdot 255 \cdot 255 \cdot 224$ ou /27

0º total de subredes $\rightarrow 8$

Fazemos $127 - 1$ original = 3 e logo

$2^3 = 8 \rightarrow n^{\circ}$ de subredes

0º de end. ínt. por subrede $\rightarrow 30$

$\frac{(32-27)}{2} - 2 = 30$

d) NET ID

194.65.52	SUBNET			Host ID				
	128	64	32	256	8	4	2	1
0 0 0	x	x	x	x	x	x	x	x
0 0 1	x	x	x	x	x	x	x	x
0 1 0	x	x	x	x	x	x	x	x
0 1 1	x	x	x	x	x	x	x	x
1 0 0	x	x	x	x	x	x	x	x
1 0 1	x	x	x	x	x	x	x	x
1 1 0	x	x	x	x	x	x	x	x
1 1 1	x	x	x	x	x	x	x	x

Endereço de Rede	Primeros Endereços	Último Endereço	Endereço de Dispersão	
194.65.52.0	• 1	• 30	• 31	→ Rede 1
194.65.52.32	• 33	• 62	• 63	→ Rede 2
194.65.52.64	• 65	• 94	• 95	→ Rede 3
194.65.52.96	• 97	• 126	• 127	→ Rede 4
:	• 6	• 6	• 6	
194.65.52.192	• 193	• 222	• 223	→ Rede 7
194.65.52.224	• 225	• 254	• 225	→ Rede 8

10) 192.168.1.0/24

8 subredes

$2^3 = 8 \rightarrow$ Logramos 8 subredes de 3 bits do Host ID

a) 255.255.255.192 ou 127

b) $\frac{(32 - 27)}{2} - 2 = \underline{\underline{30}}$

192.168.1	128	64	32	256	8	4	2	1
0 0 0	x	x	x	x	x	x	x	x
1 1 1	x	x	x	x	x	x	x	x

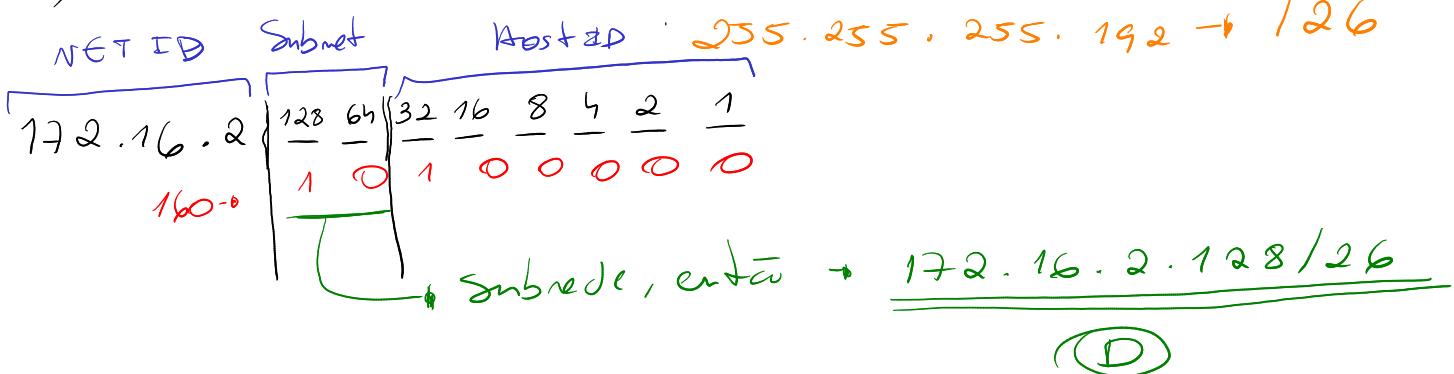
c) Primeira sub rede → 192.168.1.0
 Primeiro endereço → 192.168.1.1
 Último endereço → 192.168.1.30
 Dispersão → 192.168.1.31

Última sub rede → 192.168.1.224
 Primeiro endereço → 192.168.1.225
 Último endereço → 192.168.1.254
 Dispersão → 192.168.1.255

11)

	Classe	Privado/Público
192.168.16.1	C	Privado
200.10.10.1	C	Público
172.33.4.4	B	Público
12.10.0.1	A	Público
230.1.1.1	D	
10.1.1.1	A	Privado
194.65.52.10	C	Público

12) 172.16.2.160 → Classe C, Raiz de feito → 116

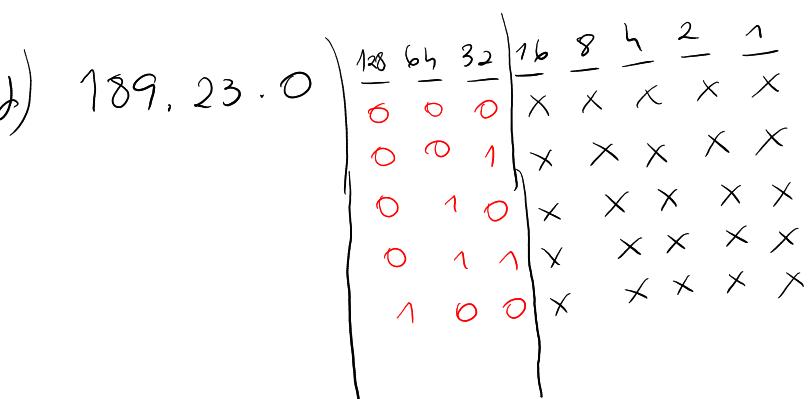


13) 189.23.0.0, subdividido recomendado a 11 bits
↳ Classe B, Raiz de feito 116

a) $2^{11} = \underline{\underline{2048}}$

b) NET ID tem agora $16 + 11 = 27$ bits, $2^{(32-27)} - 2 = \underline{\underline{30}}$.

c)
255.255.255.224



189.23.0.129 - .158

e) 189.23.3.3

$$\left| \begin{array}{ccc} 128 & 64 & 32 \\ 0 & 0 & 1 \\ 0 & 0 & 1 \end{array} \right| \left| \begin{array}{cccccc} 16 & 8 & 4 & 2 & 1 \\ 0 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 1 & 1 \end{array} \right| \rightarrow 189.23.3.40$$

$$\rightarrow 189.23.3.63$$

f)

<u>NET ID</u>	<u>Subnet ID</u>	<u>Host ID</u>
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189.23.0

$$\left| \begin{array}{ccc} 128 & 64 & 32 \\ 1 & 1 & 0 \\ 1 & 10 \end{array} \right| \left| \begin{array}{cccccc} 16 & 8 & 4 & 2 & 1 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right| \rightarrow 189.23.0.200$$

$$\rightarrow 189.23.0.192$$

<u>NET ID</u>	<u>Subnet ID</u>	<u>Host ID</u>
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189.23.12

$$\left| \begin{array}{ccc} 128 & 64 & 32 \\ 0 & 0 & 1 \\ 0 & 0 & 1 \end{array} \right| \left| \begin{array}{cccccc} 16 & 8 & 4 & 2 & 1 \\ 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right| \rightarrow 189.23.12.48$$

$$\rightarrow 189.23.12.32$$

<u>NET ID</u>	<u>Subnet ID</u>	<u>Host ID</u>
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189.23.1

$$\left| \begin{array}{ccc} 128 & 64 & 32 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array} \right| \left| \begin{array}{cccccc} 16 & 8 & 4 & 2 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right| \rightarrow 189.23.1.1$$

$$\rightarrow 189.23.1.0$$

14) 120.0.0.0/14 255.252.0.0/15
 ↳ Classe A, 1a classe e' /8

a) $14 - 8 = 6$, entao $2^6 = \underline{\underline{64}} \rightarrow$ subredes

b) $2^{(32-14)} - 2 = \underline{\underline{262142}}$ hosts válidos

c) 255.252.0.0

15) 180.80.0.0 255.255.255.192
 ↳ Classe B /16 126 Host ID

<u>NET ID</u>	<u>Subnet</u>
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180.80.0.

$$\left| \begin{array}{ccc} 128 & 64 & 32 \\ 1 & 6 & 0 \\ 127 & 0 & 1 \\ 139 & 1 & 0 \\ 212 & 1 & 1 \\ 190 & 1 & 0 \\ 16 & 0 & 0 \\ 63 & 0 & 0 \\ 126 & 0 & 1 \\ 127 & 0 & 1 \end{array} \right| \left| \begin{array}{cccccc} 32 & 16 & 8 & 4 & 2 & 1 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 & 1 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 1 & 1 & 1 & 0 \\ 1 & 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 & 1 \end{array} \right|$$

→ ✓

→ ✗ → Disjunto

→ ✓

→ ✓

→ ✓

→ ✓ → Disjunto

→ ✗

→ ✓ → Disjunto

16

Permissum
↓

a) 10.0.00/8

235. 235. 0.0/16

(1) $\rightarrow 10 \cdot 0 \cdot 0 \cdot 1 / 16$

$$(2) \rightarrow 10.0.255.254 /16$$

$$(3)-10 \cdot 0 \cdot 255 \cdot 255 / 16$$

(b) \rightarrow 8 bits

Paroisse

b) 150.00-0/16

255.255.192.0 /18

(1) -> 150.0.0.1118

$$(2) \rightarrow 150.0.63.254$$

$$(3) \rightarrow 150 \cdot 0.63 \cdot 255$$

(4) \rightarrow 2 bits

Per ans^o

c) 193.0.0.0/24

255.255.255.128 /25

(1) -> 193.0.0.1 /25

(2) - 193 : 6 : 0 : 136/25

(3) -> 193, 0, 0, 127 / 25

(4) \rightarrow 1 bit

$$\begin{array}{r}
 \text{Next ID} \quad \text{Subtract} \quad \text{Last ID} \\
 \boxed{150 \cdot 0} \quad \left[\begin{array}{r}
 \underline{12} \cancel{3} \underline{32} \cancel{16} \cancel{8} \cancel{4} \quad \underline{2} \quad \underline{1} \\
 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0
 \end{array} \right] \quad \left[\begin{array}{r}
 \underline{12} \cancel{3} \underline{32} \cancel{16} \cancel{8} \cancel{4} \quad \underline{2} \quad \underline{1} \\
 0 \quad 1
 \end{array} \right]
 \end{array}$$

(1) → (2) → (3) →

Net ID								Subnet		Host ID	
1	9	3	.	0	.	0	.	0			
								128	64	32	16
(1) →						0	0	0	0	0	0
(2) →						1	1	1	1	1	1
(3) →						1	1	1	1	1	1

17) 172.16.18.0/27

Pretende-se capacidade para 16 máquinas

Classe B

255.255.255.224

$$2^m - 2 = 16, m ??$$

$$\textcircled{4} \rightarrow \text{nº de bits do host} \Rightarrow \\ \underline{\underline{2^m - 2 = 16}}$$

a) São precisos 4 bits

b) $2^4 - 2 = 16$

c) 255.255.255.240 / 28 \rightarrow 28 para dar 16 máquinas

d) NETID + Subnet = 28 Host ID = 4

Para ver quantas subredes existem, logo máscara atual - máscara original

$$28 - 27 = \textcircled{1}, \text{ logo } 2^1 = 2$$

e) 172.16.18.

	128	64	32	16	8	4	2	1	Host
	x	x	x	0	0	0	0	1	
	0	1	1	1	1	0			→ .1
	0	1	1	1	1	1			→ .15
	1	0	0	0	1				→ .17
	1	1	1	1	0				→ .30
	1	1	1	1	1				→ .31

Nº de subredes = Subnet = 1 = Sub rede

2ª Subrede

18) a) 193.1.1.255, tem 255, logo é o campo de Difusão

b) 167.1.0.128/16 tem omission

255.255.0.0

Unicast

167.1.0.128/16 $\left| \begin{array}{cccccccccc} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{array} \right| \begin{array}{cccccccccc} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{array}$

c) 167.1.0.128/26

167.1.0.128 $\left| \begin{array}{cccccccccc} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{array} \right|$

255.255.255.192

Rede

d) $10.1.0.0/8 \rightarrow$ 101 unicast

$255.0.0.0$

$10.0.0.0/8$

$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{1}$	$\frac{2}{1}$	$\frac{1}{1}$
$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{1}$	$\frac{2}{1}$	$\frac{1}{1}$
$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{1}$	$\frac{2}{1}$	$\frac{1}{1}$

Unicast

e) $10.1.0.3/8 \rightarrow$ 101 unicast

$255.255.255.252/30$

$10.1.0.0/8$

$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{1}$	$\frac{2}{1}$	$\frac{1}{1}$
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Difusão

19) $12.61.84.0/22 \rightarrow 255.255.252.0$

a) 4 subredes $\rightarrow 2^2 = 4$ Precisamos de 2 bits

b) NetID + SubnetID $= 22 + 2 = 24$, $\underline{\underline{12}}$ $\rightarrow 255.255.255.0$

c) $2^{(32-24)} - 2 = 256$

d) $12.61.0.0/22$

$\frac{128}{0}$	$\frac{64}{1}$	$\frac{32}{0}$	$\frac{16}{1}$	$\frac{8}{0}$	$\frac{4}{1}$	$\frac{2}{0}$	$\frac{1}{0}$
-----------------	----------------	----------------	----------------	---------------	---------------	---------------	---------------

$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{0}$	$\frac{2}{0}$	$\frac{1}{1}$
$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{0}$	$\frac{2}{0}$	$\frac{1}{1}$
$\frac{128}{0}$	$\frac{64}{0}$	$\frac{32}{0}$	$\frac{16}{0}$	$\frac{8}{0}$	$\frac{4}{0}$	$\frac{2}{0}$	$\frac{1}{1}$

01
10
11

Quando temos um exercício em que a máscara fornecida

não é a conectada, temos de desobrir como essa conecta e depois no plano de endereçamento, subdividir usando números e máscaras em 128's a conectado. Os bits entre essa divisão é que são obtidos como mostrado acima.

20) 189. 10. 0. 0 /16

Capacidad tiene 200 máquinas

255.255.0.0

$$2^m - 2 = 200, m = 8, 2^8 - 2 = 254$$

a) $32 - 8 = 24, 124$

b) $24 - 16 = 8, 2^8 = 256$

c) $2^{(32-24)} - 2 = 254$

	NET ID								Subnet ID								Host ID							
	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1
189.10.0.0 →	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
189.10.0.1 →	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
189.10.0.254 →	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0
189.10.0.255 →	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
189.10.255.0 →	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
189.10.255.1 →	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
189.10.255.254 →	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
189.10.255.255 →	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

21) 172.17.10.128

255.255.255.128

172.17.11.125

1º Sección más pequeña = misma red

2º Ocupando el resto

22) 10001101 ... → Clase B

23) 199.10.8.0/21

15 subnets

no bits
per subnet

a) 255.255.248.0

$$2^m \geq 15, m = 4$$

$$21+4 = \text{NET ID} + \text{SUBNET ID}$$

A máscara será /25b) $2^4 = \underline{16 \text{ subnets}}$ c) $2^{(32-25)} - 2 = \underline{126}$

	$\frac{128}{0} \quad \frac{64}{0} \quad \frac{32}{0} \quad \frac{16}{0} \quad \frac{8}{1}$	$\frac{5}{0} \quad \frac{2}{0} \quad \frac{1}{0}$	$\frac{128}{0} \quad \frac{64}{0} \quad \frac{32}{0} \quad \frac{16}{0} \quad \frac{8}{0} \quad \frac{5}{0} \quad \frac{2}{0} \quad \frac{1}{0}$
199.10.8.0	0 0 0 0 1	1 1 1	1 0 0 0 0 0 0 0
199.10.8.1		1 1 1	1 0 0 0 0 0 0 1
199.10.8.126		1 1 1	1 1 1 1 1 1 1 0
<u>199.10.8.127</u>		1 1 1	1 1 1 1 1 1 1 1
199.10.15.128	0 0 0 0 1	1 1 1	1 0 0 0 0 0 0 0
199.10.15.129		1 1 1	1 0 0 0 0 0 0 1
199.10.15.234		1 1 1	1 1 1 1 1 1 1 0
199.10.15.255		1 1 1	1 1 1 1 1 1 1 1

Q4) 172.168.1.128.0/22 Specify for 256 machines

$$2^m - 2 \geq 256, m = 9, 2^9 - 2 = \underline{\underline{510}}$$

a) 
 The diagram shows four binary numbers with red brackets underlining specific digits:

- The first number is 111111, with a bracket underlining the last six digits (111111).
- The second number is 1111111, with a bracket underlining the last seven digits (1111111).
- The third number is 11111100, with a bracket underlining the last four digits (1111).
- The fourth number is 00000000, with a bracket underlining all eight digits (00000000).

 Below each number, its decimal value is written in red: 255, 255, 252, and 0 respectively.

b) $2^{(32-22)} - 2 = \underline{\underline{1022}}$ → 0 en desenvolvimento base é 1221 no o NETID

c) 9 bits \rightarrow Host IP
 NETID ATUAL = 22, $22 + 9 = 31$ (ω , $32 - 9 = \underline{\underline{23}}$)
 Logo a máscara deveder ser 123

$$d) \text{ Máscara Actual} - \text{Máscara Inicial} = 23 - 22 = 1$$

1 → mº bits do subnet ID

$$2 = 2$$

$$\ell) \quad 2^{(32 - 23)} - 2 = \underline{\underline{510}}$$

25)

a) IP \rightarrow 10.10.10.64

Este endereço é de rede

Másc \rightarrow 255.255.255.192/26Gateway \rightarrow 10.10.10.127Logo não é possível config.
uma máquina com este IP

10.10.10.	$\left \begin{array}{c} 128 \\ - \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 64 \\ 0 \\ 0 \\ 0 \\ 1 \end{array} \right $	$\left \begin{array}{c} 32 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 16 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 8 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 4 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 2 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} \right $
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10.10.10.	$\left \begin{array}{c} 128 \\ - \\ 0 \\ 1 \end{array} \right $	$\left \begin{array}{c} 64 \\ 1 \\ 1 \\ 1 \end{array} \right $	$\left \begin{array}{c} 32 \\ 1 \\ 1 \\ 1 \end{array} \right $	$\left \begin{array}{c} 16 \\ 1 \\ 1 \\ 1 \end{array} \right $	$\left \begin{array}{c} 8 \\ 1 \\ 1 \\ 1 \end{array} \right $	$\left \begin{array}{c} 4 \\ 1 \\ 1 \\ 1 \end{array} \right $	$\left \begin{array}{c} 2 \\ 1 \\ 1 \\ 1 \end{array} \right $	$\left \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \end{array} \right $
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O endereço gateway é
de difusão, logo também
está encodadob) IP \rightarrow 10.10.10.64Másc \rightarrow 255.255.255.128/25Gateway \rightarrow 10.10.10.120

10.10.10.	$\left \begin{array}{c} 128 \\ - \\ 0 \\ 1 \end{array} \right $	$\left \begin{array}{c} 64 \\ 1 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 32 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 16 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 8 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 4 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 2 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 1 \\ 0 \\ 0 \\ 0 \end{array} \right $

 $\rightarrow 10.10.10.64 \checkmark$ $\rightarrow 10.10.10.120 \checkmark$

Ambos os endereços são úteis e pertencem à mesma rede.

c) IP \rightarrow 10.10.10.64Másc \rightarrow 255.255.255.128/25Gateway \rightarrow 10.10.10.130

10.10.10.	$\left \begin{array}{c} 128 \\ - \\ 0 \\ 1 \end{array} \right $	$\left \begin{array}{c} 64 \\ 1 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 32 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 16 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 8 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 4 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 2 \\ 0 \\ 0 \\ 0 \end{array} \right $	$\left \begin{array}{c} 1 \\ 0 \\ 0 \\ 0 \end{array} \right $

 $\rightarrow 10.10.10.64 \checkmark$ $\rightarrow 10.10.10.130 \times$ Embora sejam ambos
endereços úteis, o IP é o

Gateway estão em redes diferentes