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- Examen lógica:

→ Ejercicio 1:

$a_n = 2n \Rightarrow \begin{cases} p(n) = 2n \\ b^h : 1^n \end{cases} (x-1)^2$

$x^2 + 1 - 2x \Rightarrow x_n - 2x_{n-1} + x_{n-2}$

→ Ejercicio 2:

$x_n - 3x_{n-1} + 2x_{n-2} = 3 \Rightarrow \begin{cases} p(n) = 3 \\ b^h = 1^n \end{cases} (x-1)$

$\hookrightarrow x = \dfrac{3 \pm \sqrt{9-8}}{2} \Rightarrow \dfrac{3 \pm 1}{2} = \begin{cases} (x-1) \\ (x-2) \end{cases}$

$(x-1)^2 (x-2) \Rightarrow \boxed{a_n = 2^n + 4}$

- Ejercicio 3:

$z\backslash^{x\,y}$	00	01	11	10
00			1	
01	1	1	·	
11	1	1	1	
10			1	1

Ejercicio 4:

$$f(x,y,z,t) = x\bar{z} + \bar{x}t + y\bar{z} + \bar{z}t;$$

x y z t	f
0 0 0 0	0
0 0 0 1	1
0 0 1 0	0
0 0 1 1	1
0 1 0 0	1
0 1 0 1	1
0 1 1 0	0
0 1 1 1	1
1 0 0 0	1
1 0 0 1	1
1 0 1 0	0
1 0 1 1	0
1 1 0 0	1
1 1 0 1	1
1 1 1 0	0
1 1 1 1	0

9 minterns

Ejercicio 5:

$$f_{110} = 110 - 2^6 = 46 - 2^5 = 14 - 2^3 = 6 - 2^2 = 2 - 2^1 = 0$$

x	y	z	f_{110}
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0
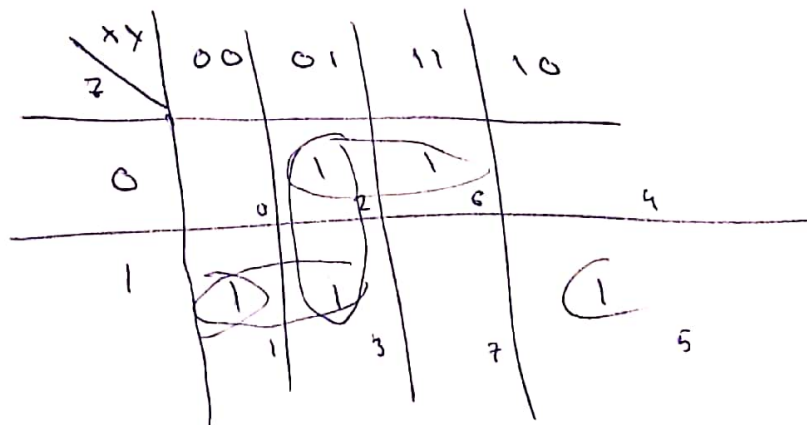
	001	010	010	001
	011	011	110	101
	$\bar{x}z$	$\bar{x}y$	$y\bar{z}$	$\bar{x}z$
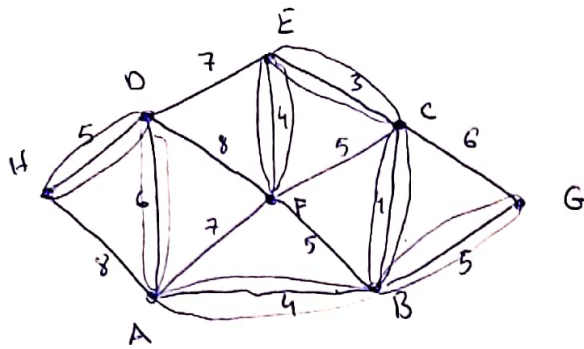
- Ejercicio 8:

Peso mínimo $\Rightarrow$ 31

- Ejercicio 9:
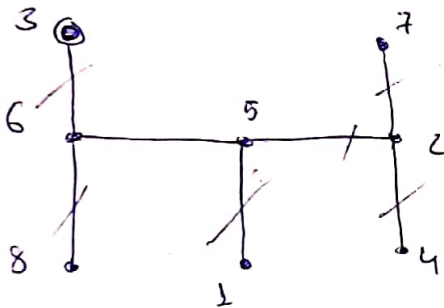
$(5, 6, 2, 2, 5, 6)$

Recortando $\uparrow$

- Ejercicio 10:

$\Rightarrow$ Inorden $\{ k, d, o, j, i, a, c, r, p, q, e, f, m, g, h, b, l, n \}$

- Ejercicio 11:

$1 + b + b \to a$

a	b	$b \to \neg a$	$\neg(b \to \neg a)$	$\neg a \to \neg(b \to \neg a)$
0	0	1	0	0
0	1	1	0	0
1	0	1	0	1
1	1	0	1	1

- Ejercicio 12:

$\{a \to \neg b, \neg c \to b, c \to \neg d, \neg(d \to \neg a)\}$

$\{\neg a \lor \neg b, c \lor b, \neg c \lor \neg d, \neg(\neg d \lor \neg a)\}$

$\{\neg a \lor \neg b, c \lor b, \neg c \lor \neg d, d \land a\}$

$\qquad | \qquad a = 1 \text{ (Regla 1)}$

$\{\neg b, c \lor b, \neg c \lor \neg d, d\}$

$\qquad | \qquad \text{Regla (1) } d = 1$

$\{\neg b, c \lor b, \neg c\}$

$\qquad | \qquad \text{Regla (1) } \neg b = 0$

$\{c, \neg c\}$

$\qquad ' \; |$

$\{\Box\} \Rightarrow \text{Insatisfacible}$

- Ejercicio 14:

$\exists x\, P(x) \to (\forall x\, Qx \to (\forall x\, Rx \to \forall x\, S(x)))$

$\underset{\circlearrowright}{\;}\exists x\, P(x) \to (\forall x\, Qx \to \forall z\, (\forall x\, Rx \to S(z)))$

$\underset{\circlearrowright}{\;}\exists x\, P(x) \to (\forall x\, Qx \to \forall z\, \exists y\, (R(y) \to S(z)))$

$\exists x\, P(x) \to \forall z\, (\forall y\, Qy \to \exists y\, (R(y) \to S(z)))$

$\underset{\circlearrowright}{\;}\exists x\, P(x) \to \forall z\, \exists y\, (Q(y) \to (R(y) \to S(z)))$

$\underset{\circlearrowright}{\;}\exists y\, P(y) \to \forall z\, \exists y\, (Q(y) \to R(y) \to S(z)))$

$\exists y\, \forall z\, P(y) \to Q(g)$

$\underset{\circlearrowright}{\;}\forall z$