Lista de exercícios práticos 01 (Construção de circuitos lógicos)

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Exercício 1:

Respostas dos circuitos

Fórmula: a | (b & (c | d))

Falstad:
https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgpABZsKBTAWjDACgwEURNu09acHvig9RCNgBkeGbmGJ8aVedypUAZgEMANgGcG1SBy4gm2RVWKEeS0aorHL1lChrgFPV3fFSQV4QKEbvyiGjr6hr5mfF5MQZ5uaiBaegZIRtLRPAjWccE5ocnhaVBsAO7uMcGyCaUAsoJUIXR8Ik3QEgAePNgQYCQ21mA1wW4AgmzdCMTu9BhI8tajIABCk6YYwSJMCOQorLQ2IADC60zzPMRUOwIoxPTLACJsAPYggYmCxAIw8JAYhDu2GINAQvRQ6WgEGUbCAA

Tinkercad: https://www.tinkercad.com/things/aYZ15bfRzB6-cool-trug/editel?sharecode=drPmJHWULsJOvHMvU2on6tfghXKjsCq4iDx6mgBITPk

a	b	c	d	a | b & (c | d)
1	1	1	1	1
1	1	1	0	1
1	1	0	1	1
1	1	0	0	1
1	0	1	1	1
1	0	1	0	1
1	0	0	1	1
1	0	0	0	1
0	1	1	1	1
0	1	1	0	1
0	1	0	1	1
0	1	0	0	0
0	0	1	1	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	0

Exercício 2:

Fórmula: (A | B) & C

Falstad:
https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2

ATmIxAUgpABZsKBTAWjDACgwEVwxuxjuKBIXACoIblQQdKE4RPy04CvOMkU2AWSVU0qmjVV610aQBkefDCMI1w18VQBmAQwA2AZwbVIbC60FFWxVHEFdPbyRfCyERFBQ7WIkMdWd3Lx82AA8JMHpcCGwwEVw7RLsAYQAdDwAKAGMACxcANwYASmzaCCEITkEEMok7ACEa2q8AOw8AewAnTpzsO05yMANwQipykABBcanZhbYZiRBg7chiVSjoCCp2IA

Tinkercad: https://www.tinkercad.com/things/0ncyJOHfRNQ-copy-of-oac-lista-de-exercicio-1-questao-1/editel?sharecode=PFATFKNWmQFYPCZXha_KHlYFE4lORJpMj01mfqnEa3Q

Constants			Premises
A	B	C	(A | B) & C
1	1	1	1
1	1	0	0
1	0	1	1
1	0	0	0
0	1	1	1
0	1	0	0
0	0	1	0
0	0	0	0

Exercício 3:

A: Passa das 5h.

B: Máquinas desligadas.

C: Sexta-feira.

D: Produção do dia foi atingida.

Fórmula: (A & B) | (C & D & B)

Falstad: https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgpABZsKBTAWjDACgAZETFcY3tHj68qVAGYBDADYBnBtUiduGAQkLd83NVB2TZ8pIq48Q2NBqFnRu6XIVKT2PDQunnO8bYNQ2AD3AYxAHqmEhggbTg6gAKEjIyEgA6MgAmcckIABZ+ARAo2BBW3NguLmDqALISAI4ArgCWAHbpqQwyUvUA5hJpMjnhIcT0KAgCxOpl6gDKDL4ALhJMYgz1AE4S-RhI2AiWkPTYhBCTINGrAPYptQDnAMfnyRJzTZ31aWxglLQ0QigoLmoqH8XECdAg2AB3ZS8MD8UyHYQ+KHYBGw3gokKaRRQkwjdQYrTqbHwkLaAn-UQfL4Ena8Gg-UyjHQiCiQ6Gmcw08zErlUGkI4mOdw09w8hFOFw0whCMUhGh8hEmWXs+m-FRI75qukMoqKT5UGiESUIwEk5lgtnk+Wa7jW5WCG0O4mqjkGo2ujUu2m0d3evVM00-A1mWh4aws8FQ03AkCETQx4lx37-WOaGjjDVJ2gZwMZ4mmgkIDD4gVsosl9Tln0gsvF6sUOP1xQVWghoO0OCh8PQcH+bA4H102E+pAnKZrBiNBhsIA

Falstad: https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgpABZsKBTAWjDACgAZETFcY3tHj68qVAGYBDADYBnBtUiduGAQkLd83NVB2TZ8pIq48Q2NBqFnRu6XIVKT2PDQunnO8bYNQ2AD3AYxAHqmEhggbTg6gAKEjIyEgA6MgAmcckIABZ+ARAo2BBW3NguLmDqALISAI4ArgCWAHbpqQwyUvUA5hJpMjnhIcT0KAgCxOpl6gDKDL4ALhJMYgz1AE4S-RhI2AiWkPTYhBCTINGrAPYptQDnAMfnyRJzTZ31aWxglLQ0QigoLmoqH8XECdAg2AB3ZS8MD8UyHYQ+KHYBGw3gokKaRRQkwjdQYrTqbHwkLaAn-UQfL4Ena8Gg-UyjHQiCiQ6Gmcw08zErlUGkI4mOdw09w8hFOFw0whCMUhGh8hEmWXs+m-FRI75qukMoqKT5UGiESUIwEk5lgtnk+Wa7jW5WCG0O4mqjkGo2ujUu2m0d3evVM00-A1mWh4aws8FQ03AkCETQx4lx37-WOaGjjDVJ2gZwMZ4mmgkIDD4gVsosl9Tln0gsvF6sUOP1xQVWghoO0OCh8PQcH+bA4H102E+pAnKZrBiNBhsIA

Tinkercad: https://www.tinkercad.com/things/ad9WqrTJj0o-copy-of-oac-lista-de-exercicio-1-questao-1/editel?sharecode=mMRitUyUhPtki2ljpkpLxKpQxwtdzGIZVKCqdJSvafY

A	B	C	D	A & B | C & (D & B)
1	1	1	1	1
1	1	1	0	1
1	1	0	1	1
1	1	0	0	1
1	0	1	1	0
1	0	1	0	0
1	0	0	1	0
1	0	0	0	0
0	1	1	1	1
0	1	1	0	0
0	1	0	1	0
0	1	0	0	0
0	0	1	1	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	0

Exercício 4:

Fórmula:

Entradas: A,B,C,D

1º máquina liga com: A

2º máquina liga com: B

3º máquina liga com: ((A & B) ⊕ C) & C

4º máquina liga com: (((A & B) | (3º & (A | B)) ⊕ D) & D

Falstad:

https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgpABZsKBTAWjDACgAZEYwkPKmnj5UqEAGYBDADYBnBtUiduvMDRq0hq9aJCTZ8pIq48QKBL0GnzUG3rkKl-WthQgXz1yN3T7htgA8QQiFCCDwIQnV1FHV2QJJwXD5XMGx6aOiAoKEY9XDTGnIMtyzgjTyIQSKC2jYAd2VhIOsnRQaTLWaVNSh68EJRDF4UGPAh3obOtBzR6d6wBHVcDIFLGK9XJAQ+lDxNYldl8AOJt0hYk6OR7T6TM14r6zbGzo7x57eVAbHeD94nEwmP4vHpAvqvbrRfCnR4Pc6mDCeNgLVY5ay

Eaz3GyeCjIyimUZgE67fY4za4hpXRFnaJ7GHwkm0NZ055qHJ0tkIpEAWS6Vl4iKoWKF0G2DScdEOaA8vV5GMhIEF4B6Iu2cpaVCVrVMorxKV2bgQrnWhrJ1DFjQBKjASPa1v1mhtpxtjodbmwv1uKnGJg9QmBfvABsDihRbjwSzKNF9ZSFNgt8v5fJcIj6iZT4aW0ue2AjbmluaWRtOJuwxbLh2LOfLNcOeerdaWecL9IuUtEJxz0qJ7doYE9lOlNH7tBMw4Ho4sI+jFjg80WFBONDnwSEy425r6Gcli9cO+eCCX7kPe5HoeLM8zFHGLbjWz6CBveZPV-PVEfvCNITpX+x8b6EruE4iw3OK749B+FAqmmHIrhykSnKutAIZBNAIQe4xoeokEIE6ihyj+BpKr+qpsEAA

Tinkercad: https://www.tinkercad.com/things/aZnfoHhh4WZ-copy-of-oac-lista-de-exercicio-1-questao-1/editel?sharecode=Y87qlj8zN88NvOwaQu9dq0_Gc2fagva-lpQ8JA0pmiE

1	2	3	4	=	
1	1	1	1	=	1100
1	1	1	0	=	1100
1	1	0	1	=	1100
1	1	0	0	=	1100
1	0	1	1	=	1010
1	0	1	0	=	1010
1	0	0	1	=	1001
1	0	0	0	=	1000
0	1	1	1	=	0110
0	1	1	0	=	0110
0	1	0	1	=	0101
0	1	0	0	=	0100
0	0	1	1	=	0011
0	0	1	0	=	0010
0	0	0	1	=	0001
0	0	0	0	=	0000