NICKLASH

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Obligatorisk Oppgave 1

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Jeg faktoriserte 10A til 8A+2A ⬄ (2(2(2A)))+(2A) = 10A. dette gjøres ved 3 shift + 1 shift.

ttersom maks inn er 15 så er maks ut 150 det vil si at 128 bitet er nok som utgang og 256 bitet som sign, Jeg har dermed koblet det til 9 bit utganger 8 for svarene og 1 for sign bit.

Alle blir inverter dersom sign bit er aktiv.

Sannhets tabell:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| V | W | X | Y | Z | I | H | G | F | E | D | C | B | A |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |

Funksjon:

Beklager eventuelle parentes feil

a= ((v⊕0)⊕v)

b=(((v⊕0)\*v) ⊕(v⊕w))

c=((((v⊕0)⊕v) \* (v⊕w)) ⊕(v⊕x))

d=((((v⊕0)⊕v) \* (v⊕w)) \* (v⊕x)) ⊕ (v⊕(w⊕y))

e=((((((v⊕0)⊕v) \* (v⊕w)) \* (v⊕x)) \* (v⊕(w⊕y))) ⊕(((v⊕(x⊕z) ⊕wy)

f=((((((v⊕0)⊕v) \* (v⊕w)) \* (v⊕x)) \* (v⊕(w⊕y))) \* (((v⊕(x⊕z) ⊕wy) ⊕ (v⊕( y⊕(xz+((x⊕z)(wy)))

g=((((((((v⊕0)⊕v) \* (v⊕w)) \* (v⊕x)) \* (v⊕(w⊕y))) \* (((v⊕(x⊕z) ⊕wy) \* (v⊕( y⊕(xz+((x⊕z)(wy)))) ⊕ (v⊕( z⊕(y(xz+((x⊕z)(wy)))))

h=((((((((((v⊕0)⊕v) \* (v⊕w)) \* (v⊕x)) \* (v⊕(w⊕y))) \* (((v⊕(x⊕z) ⊕wy) \* (v⊕( y⊕(xz+((x⊕z)(wy)))) \* (v⊕( z⊕(y(xz+((x⊕z)(wy)))))) ⊕(v⊕( z(y(xz+((x⊕z)(wy)))

)

i=v⊕(((((((((((v⊕0)⊕v)\*(v⊕w))\*(v⊕x))\*(v⊕(w⊕y))) \*(((v⊕(x⊕z) ⊕wy) \* (v⊕( y⊕(xz+((x⊕z)(wy))))\*(v⊕( z⊕(y(xz+((x⊕z)(wy))))))\*(v⊕( z(y(xz+((x⊕z)(wy)))

))