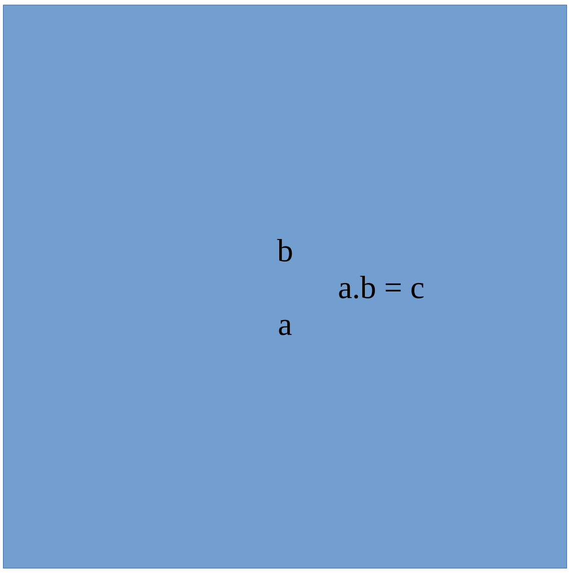
1001 => complement of 1001 = 0110 (unary operation) => n=1
x + y => binary operation.... => n=2
For n = 3 => ternary operation...
x, y, z [x * y * z = ?]

f: X x Y x Z -> U
*
F(x*y*z) = u

Conditional operation (ternary operation):
isMember ? '$2.00' : '$10.00'

```
if (isMember it TRUE) then
   return $2.00
else
   return $10.00
```

x xor y = ?
x xor y xor z = (x xor y) xor z = x xor (y xor z)



A = {-1, 1, i, -i}, i = sqrt(-1)

g = i

i^1 = i
i^2 = -1
i^3 = -i
i^4 = 1

{i^1, i^2, i^3, i^4} = {i, -1, -i, 1,2} = A

g^1, g^2, ... g^n = e, ... order of g = n
order of i = 4

1 = 1 + i.0 = cos 2n pi + i sin 2n pi = e^{2n pi i}

$w^n = 1$

Problem 1: Show that in any monoid, the mapping g_a: x > x.a is one-one if
a has a right inverse.

Problem 2: Let S be any monoid.
(a) Show that an element a in S has a left inverse iff the transformation f_a: x -> a.x
is one-one
(b) Show that an element a has a left-inverse iff it has also a right inverse.