

3.2.A Classical Operations Prerequisites

1. Is the AND gate reversible? Why/why not?
2. Create a reversible AND gate. Draw out the truth table.

Answers

1. The AND gate is not reversible as if it returns 0, we don't know the input for certain. It could have been 00, 01 or 10.

2.

x_0	x_1	c	x_0	x_1	$c \oplus f(x_0, x_1)$
0	0	0	0	0	0
0	0	1	0	0	1
0	1	0	0	1	0
0	1	1	0	1	1
1	0	0	1	0	0
1	0	1	1	0	1
1	1	0	1	1	1
1	1	1	1	1	0