Princeton University
COS 217: Introduction to Programming Systems
A Majority Circuit

Description

Accept three inputs and produce one output. Output 1 if and only if the majority of the inputs are 1.

Truth Table

x	y	z	MAJORITY
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

Boolean Expression

```
MAJORITY = (~x & y & z) | (x & ~y & z) | (x & y & ~z) | (x & y & z)
```

(Note: Could simplify)

Circuit

(See reverse)