

Circuits and Boolean Logic

What does an adding circuit look like? Let's consider adding in binary:

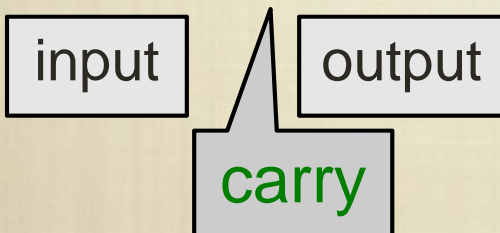
1-bit numbers

$$0 + 0 = 00$$

$$0 + 1 = 01$$

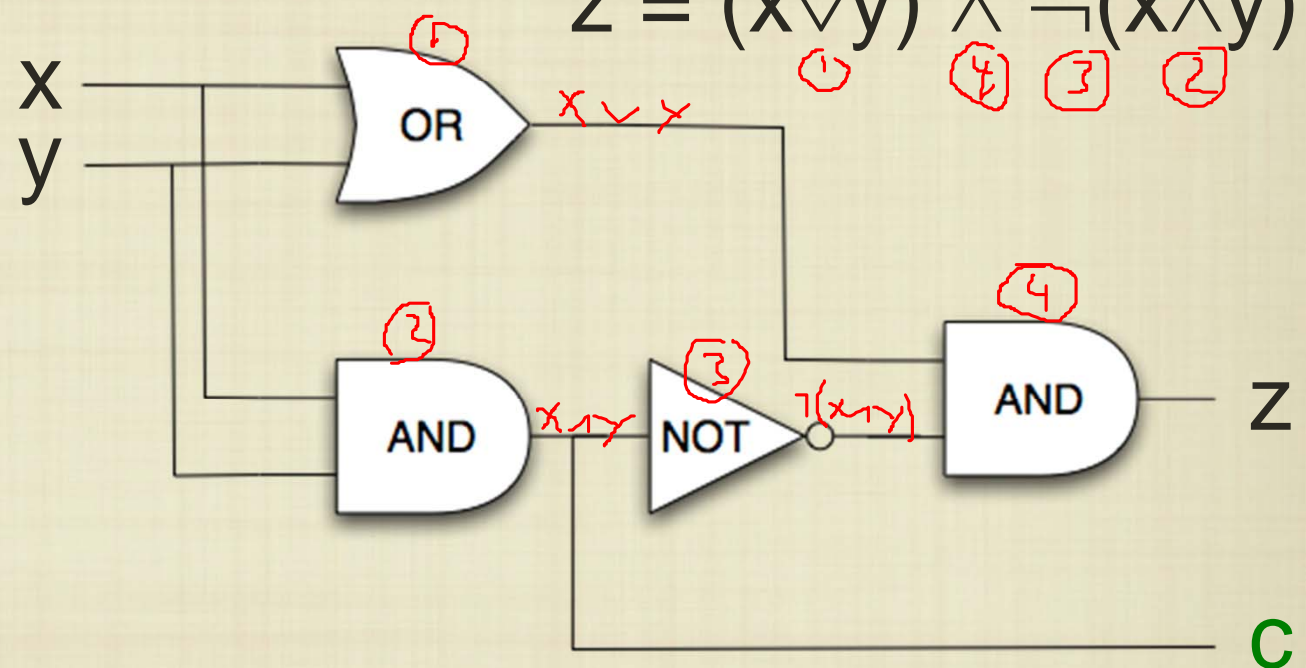
$$1 + 0 = 01$$

$$1 + 1 = 10$$



$$C = x \wedge y$$

$$Z = (x \vee y) \wedge \neg(x \wedge y)$$



A one-bit adder needs 4 gates. How do we add numbers with more bits?