

1. Convert the following numbers from binary to decimal.

(a) $(1001)_2$

(b) $(10110)_2$

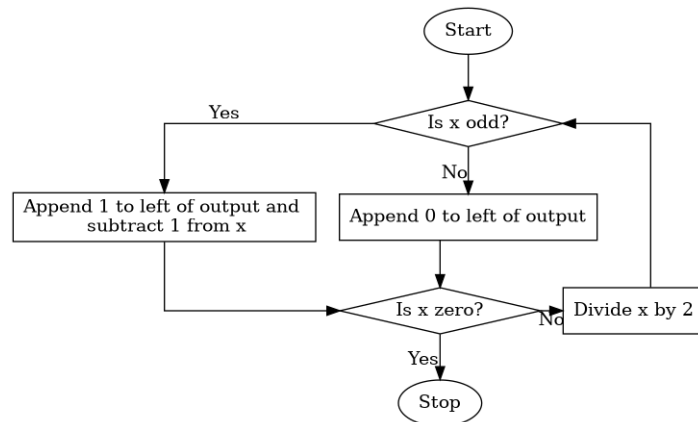
(c) $(100.11)_2$

(d) $(0.001)_2$

2. Use the algorithm below to convert the following base-10 numbers to base-2.

(a) 37

(b) 82



3. What happens when you enter `10 ** 309` into Python? What if you type `10.0 ** 309`? Why is there a difference?
4. If you enter `0.2 * 3 - 0.6` into the Python shell, you get: `1.1102230246251565e-16`.
- (a) What does `e-16` mean here?
- (b) Why don't you get zero?
5. How many (nonnegative) integers could you represent with 16 bits?