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## Exercise 3

### Exercise 3

4/4 points (graded)

**ESTIMATED TIME TO COMPLETE: 5 minutes**

1. True or False? The internal computer representation of any number is always an approximation.

☐ True

☒ False



2. The decimal 11 is what binary?:

☐ 11

☒ 1011

☐ 1101

☐ cannot be converted





3. True or False? The internal representation of the decimal number  $1/10 = 0.1$  requires an infinite number of digits.

☒ True

☐ False



4. After many computations, you get two floating numbers stored in variables `a` and `b`. Your code compares the numbers with `a == b`.

☐ Doing the comparison will always lead to a correct program.

☒ Doing the comparison will sometimes lead to a correct program.

☐ Doing the comparison will never lead to a correct program.



1. Some numbers, like integers, can be represented exactly.

3. Look back at the last slide in the video. "If there is no integer  $p$  such that a power of 2 multiplied by  $x$  gives me a whole number, then the best I'm going to get is an internal representation that's close." That is the case for this example.

4. When you do many computations on floats, you accumulate floating point errors. The errors accumulated for `a` and `b` may not match up, so doing may (or may not) comparison will lead to an inequality.

Enviar

 Answers are displayed within the problem

## Exercise 3

Topic: Lecture 3 / Exercise 3

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