Exercises 3

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5 points possible (graded)

ESTIMATED TIME TO COMPLETE: 5 minutes

Note that you will have to answer all questions before you can click the Check button.

1. True or False? A stored program computer is designed to compute precisely one computation, such as a square root, or the trajectory of a missile.

   - ○ True
   - ◉ False ✔

2. True or False? A fixed program computer is designed to run any computation, by interpreting a sequence of program instructions that are read into it.

   - ◉ True
   - ○ False ✔

3. A program counter

- counts the number of primitive operations executed by the program.
- counts the number of primitive operations comprising a complex operation.
- points the computer to the next instruction to execute in the program. ✔
- remembers how many times a program has been executed.

4. What does it mean when we say that "the computer walks through the sequence executing some computation"?

- The computer tests each instruction to ensure it will not harm the circuitry.
- The computer executes the instructions in strict, linear sequence, just like walking in a straight line.
- The computer executes the instructions mostly in a linear sequence, except sometimes it jumps to a different place in the sequence. ✔
- The computer slowly executes instructions so that we can follow its progress, rather than running a program at full speed.

5. True or False? In order to compute everything that is computable, every computer must be able to handle the sixteen most primitive operations.

- True
- False ✔

Explanation:
Alan Turing proved that all problems can be computed with only 6 primitives!