1. [2 points] What is an invariant?
   • Something that should be true at a given point in the a program.
   or
   • A predicate about the state of a program at some point in the code that should
     always be true if the program is running correctly.

2. [2 points] What is the difference between a tuple and a list? Give two examples of
   operations that can be performed on one of these but not the other.
   
   A tuple is immutable and a list is mutable.

   Append and element assignment work on lists but not tuples.

   Or
   
   If \( t \) is a tuple, then these expressions will cause errors:
   
   \[
   t = \text{append}() \\
   t[1] = x
   \]

3. [3 points] Write a function \texttt{remove_first(s)} that takes a string argument and
   returns a string consisting of all character(s) of \( s \) except the first. Use an assert to
   enforce that the argument \( s \) is a non-empty string.

   \[
   \text{def remove_first(s):} \\
   \text{assert type(s) == str, "s is not of type str"} \\
   \text{assert s != ", "s is an empty string"} \\
   \text{return s[1:]} \\
   \]

4. [3 points]

   \[
   \text{def boolean_foo(x, y, z):} \\
   \text{return (x > y and z == x) or (x <= y and z == y)}
   \]