1. Prove that the following code terminates. You may assume that the precondition is that \(a, b \in \mathbb{N}\).

```python
def f(a, b):
    x = a
    y = b
    count = 0
    while x > 0 or y > 0:
        if y > 0:
            y--
        else:
            x--
            y += 9
        count++
    return count
```

2. Prove that the following function is correct, according to its pre- and postconditions. (Note that a complete proof would require a proof of termination, but we won’t be covering that in this tutorial.)

```python
def f(A):
    # Pre: A is a list of integers
    # Post: Returns true if and only if there is an even number of positive
    # numbers in A
    even = True
    i = 0
    while i < A.length:
        if A[i] > 0:
            even = not even
    return even
```