CSCE 222: Discrete Structures for Computing
Section 503
Fall 2016

YOUR NAME HERE

November 20, 2016

Problem Set 12

Due: 20 November 2016 (Sunday) before 11:59 p.m. on eCampus (`ecampus.tamu.edu`).
You must show your work in order to recieve credit.

Problem 1. (20 points)
Verify that the following program segment is correct with respect to the initial assertion $y = 3$ and the final assertion $z = 6$.

Algorithm 1: program segment

```
1 x := 2
2 z := x + y
3 if y > 0 then
4 |   z := z + 1
5 else
6 |   z := 0
```

Problem 2. (30 points)
Use a loop invariant to prove that the following program segment for computing the n-th power, where n is a positive integer, of a real number x is correct.

Algorithm 2: program segment

```
1 power := 1
2 i := 1
3 while i ≤ n do
4 |   power := power * x
5 |   i := i + 1
```

Aggie Honor Statement: On my honor as an Aggie, I have neither given nor received any unauthorized aid on any portion of the academic work included in this assignment.

Checklist: Did you...
1. abide by the Aggie Honor Code?
2. solve all problems?

3. start a new page for each problem?
4. show your work clearly?
5. type your solution?
6. submit a PDF to eCampus?