

# CIS 623 Structured Programming and Formal Methods- Assignment 4

1 Find the weakest precondition:

$wp(x = x + y, \neg(x > y))$

2. Which of the following is valid?

$[x < y] \ x = x + y \ [\neg(x > y)]$

$[\neg(x > y)] \ x = x + y \ [\neg(x > y)]$

$[(x + 3 < 0)] \ x = x + y \ [\neg(x > y)]$

3. Find the weakest precondition

$wp(\text{if } y > 0 \text{ then } x = x + y \text{ else } x = x - y, \ x > 10)$

4. Which of the following is valid.

$[x + y > 10] \text{ if } y > 0 \text{ then } x = x + y \text{ else } x = x - y \ [x > 10]$

$[x > 10] \text{ if } y > 0 \text{ then } x = x + y \text{ else } x = x - y \ [x > 10]$

$[y > 10] \text{ if } y > 0 \text{ then } x = x + y \text{ else } x = x - y \ [x > 10]$