

### CS8 Homework Assignment 3

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1. Consider the following code, and write the sequence of statements (Si) that will be executed for the values  $x=0$ ,  $x=1$ , and  $x=-1$

```
S1
if x<0:
    S2
else:
    S3
S4
```

2. Consider the following code, and write the sequence of statements (Si) that will be executed for the values of  $(x,y) = (0,0), (0,1), (1,0), (1,1), (-1,-1)$

```
S1
if x==0 and y==0:
    S2
elif x>0 and y>0:
    S3
elif x>0 or y>0:
    S4
else:
    S5
S6
```

3. Consider the following code, and write the sequence of statements (Si) that will be executed for the values of  $(x,y) = (0,0), (0,1), (1,0), (1,1), (-1,0), (0,-1), (-1,-1)$

```
S1
if x==0:
    S2
    if y>0:
        S3
    else:
        S4
elif x>0:
    S5
    if y<0:
        S6
    else:
        S7
else:
    S8
```

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4. Consider the following function:

```
def func(x, y, n):  
    w = x**n - y**n  
    z = x**n + y**n  
    return(w/z)
```

Write the results `func(1,2,3)`, `func(2,1,3)`, `func(1,-1,2)`, `func(1,-1,1)`, `func(1,-1,99)`

5. What are the results of the following Boolean expressions, such that `x = True`, `y = False`, `z = False`, `w = True`

- a) `x and y`
- b) `x and y and z`
- c) `x and y and z and w`
- d) `x or y`
- e) `x or y or z`
- f) `x or y or z or w`
- g) `(x and y) or (z and w)`
- h) `(x or y) and (z or w)`
- i) `(not x) or y`
- j) `(not x) and (not y)`
- k) `not (x or y)`
- l) `(not z) or (not w)`
- m) `not (z and w)`
- n) `x and True`
- o) `y or True`
- p) `(x and y and z and w) or True`