

CS 8 Introduction to Computer Science

Homework Assignment 4

Question 1

Write the results of these Python statements:

```
>>> for i in range(-4,7,2):  
    print(i)
```

```
>>> for i in range(8,-3,-1):  
    print(i**2)
```

```
>>> for i in range(10):  
    print(i//2)
```

Question 2

Write the results of these Python statements:

```
>>> a = [1, 3, 5, 2, 4, 6]  
>>> for x in a:  
    print(2**x)
```

```
>>> a = [2, 4, 6, 5, 3, 1]  
>>> for i in range(len(a),0,-1):  
    print(a[-i]+1)
```

```
>>> a = "cat dog"
>>> b = [2, 5, 1, 4, 3, 6, 5, 1, 2]
>>> c = ""
>>> for i in b:
        c = c + a[i]
>>> print(c)
```

```
>>> a = "immutable"
>>> b = ""
>>> for c in a:
        b = c + b
>>> print(b)
```

```
>>> a = "Einstein"
>>> for i in range(len(a)):
        print(a[:i])
```

Question 3

Given the following Boolean variables with assigned values:

```
>>> a = True
>>> b = False
>>> c = True
```

What are the values of the Boolean variable d in each case?

```
>>> d = (a or b) or c
```

```
>>> d = a or (b or c)
```

```
>>> d = not(a and c)
```

```
>>> d = (a or b) and (b or c)
```

```
>>> d = (a or b) and not(b or c)
```

Question 4

Given the string `s = "logic will get you from a to b"`, what would the following Python code print?

```
m = len(s)//5
for i in range(m+1):
    print(s[5*i:5*i+5])
```

Question 5

Consider the following Python code:

```
i = n
while(i>1):
    print(i)
    if (i%2 == 0):
        i = i//2
    else:
        i = 3*i + 1
```

What will this code print input `n = 13`

What will this code print input `n = 8`

What will this code print input `n = 7`

Question 6

Assume that the turtle `bob` is facing right and in the left bottom corner of the window, as shown. Draw the traces of the turtle `bob` for each given code. Indicate the final location and direction of the turtle.

```
bob.left(45)
for i in range(3):
    bob.forward(100)
    bob.left(120)
```

▷

```
for i in range(4):
    bob.forward(100)
    bob.left(60)
```

▷

```
for i in range(3):
    bob.forward(100)
    bob.left(60)
    bob.backward(50)
    bob.left(60)
```

▷

```
bob.left(45)
for i in range(4):
    bob.forward(100)
    bob.left(45)
    bob.backward(50)
    bob.left(45)
```

▷