CSCI 150

Function Stack Practice

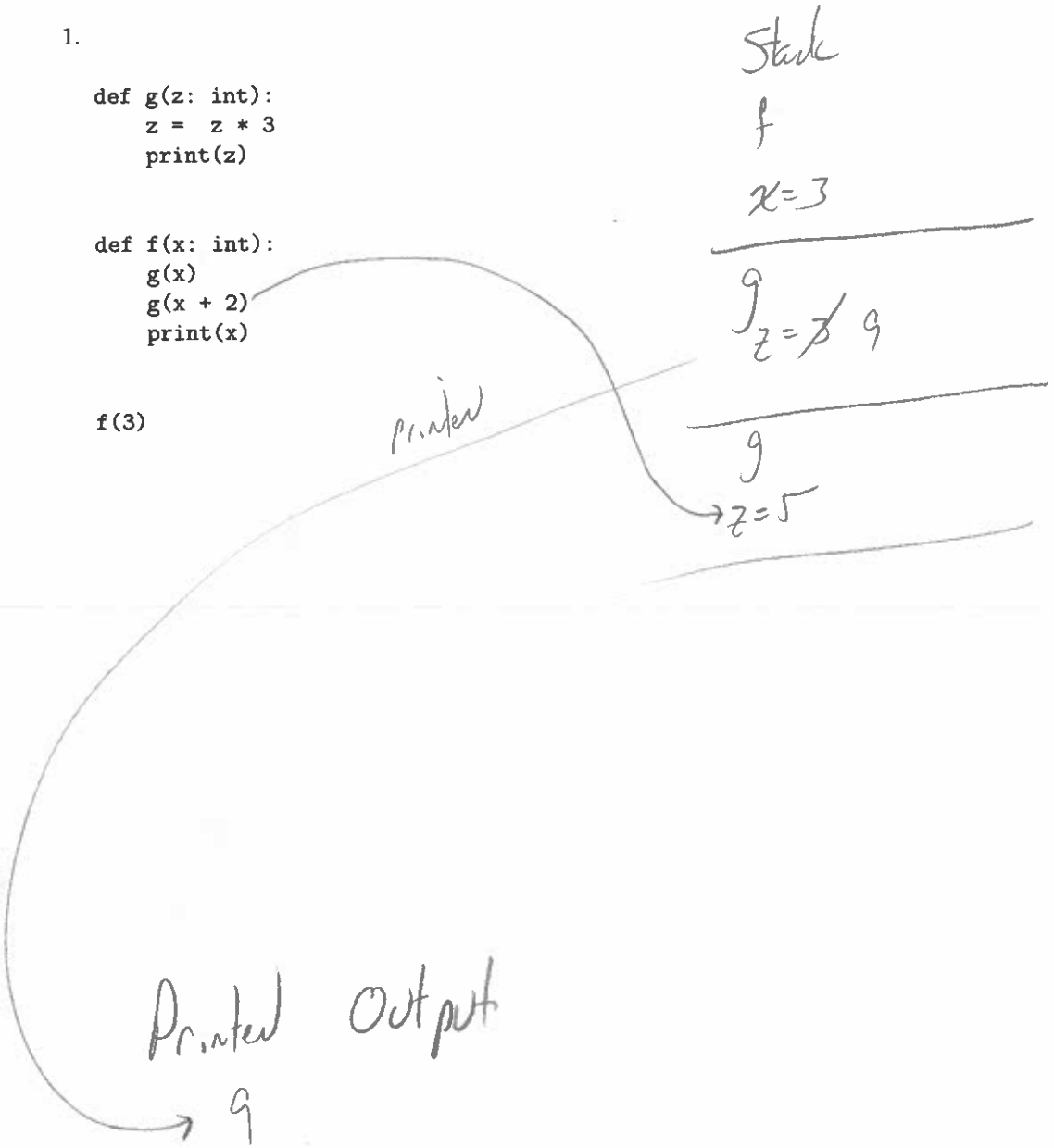
(This code, and sample solutions, are also posted to the class webpage.)

1.

```
def g(z: int):
    z =  z * 3
    print(z)


def f(x: int):
    g(x)
    g(x + 2)
    print(x)


f(3)
```



Printed Output

9
15
3

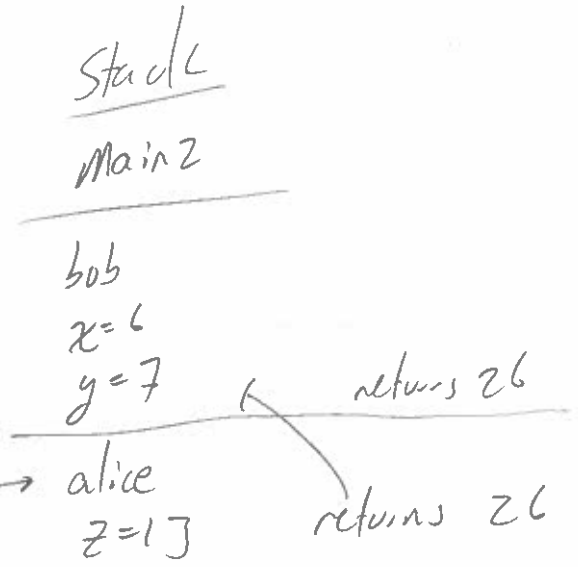
2.

```
def alice(z : int) -> int:
    if z > 0:
        return z * 2
    else:
        return z + 10

def bob(x : int, y : int) -> int:
    if y < x:
        return alice(x) + alice(y)
    else:
        return alice(x + y)

def main2():
    print(bob(6,7))

main2()
```



printed output

26

[We then redo this example, but change the code inside `main`]

2.5.

```
def alice(z : int) -> int:
    if z > 0:
        return z * 2
    else:
        return z + 10

def bob(x : int, y : int) -> int:
    if y < x:
        return alice(x) + alice(y)
    else:
        return alice(x + y)

def main2():
    print(bob(8,-2))

main2()
```

Stack

main2

bob
x = 8
y = -2

alice
z = 8 returns 16

alice
z = -2 returns 8

returns 24

Printed output

24

3.

```
def aaa(x: int, s: str) -> int:
    z = 7
    if x < z and s < 'hello':
        z += 3
        print(f'My string is {s} and number is {x}.')
    else:
        z *= 4
        print(f'I do not like the number {x}.')
    return z

def bbb(x: int, y: int) -> int:
    if x < y:
        return y // x
    else:
        return x - y

def main3():
    x = bbb(7,2)
    print(aaa(x,'hi'))
    print(aaa(bbb(3,14),'abcd'))

main3()
```

Stack

main 3

x = 5

bbb

x = 7

y = 2

returns 5

aaa

x = 5

s = 'hi'

z = ~~7~~ 28

aaa

x = < 4 (

s = 'abcd'

z = ~~7~~ 10

bbb

x = 3

y = 14

returns 4

I do not like the number 5.

My string is abcd and number is 4.