Your name:_____ ***Do these problems WITH YOUR INSTRUCTOR.***

1. Trace the execution of the code. As each "#### Location" is encountered during the run:
   1. ***CIRCLE* each variable** that is ***defined*** at that location.
   2. ***WRITE t*he *VALUE*** of each variable that you ***circled*** directly ***BELOW*** the circle.

```
def main():
    w = 1
    x = 2
    y = 3
    z = 4
    #### Location 1

    z = cat(w, x, y, y)
    #### Location 2

    w = 999
    a = 44
    a = dog(a)
    #### Location 3


def dog(a):
    #### Location 4
    w = 100
    a = a + w
    w = w + 25
    #### Location 5
    return a


def cat(w, z, y, x):
    #### Location 6
    w = 50
    x = 101
    b = w
    b = b + 45
    #### Location 7
    return w

#### Location 8
main()
#### Location 9
```

	a	b	w	x	y	z
Location 1						
Location 2						
Location 3						
Location 4						
Location 5						
Location 6						
Location 7						
Location 8						
Location 9						

Make notations in the code as desired to show your work.

2. What does this code print when it runs? Write your answer in the box to the right. Make notations in the code as desired to show your work.

```
def main():
    a = blue(7)
    b = red(6, 4)
    print('Main:', a, b)


def blue(x):
    print('Blue:', x)
    x = 2 * x
    print('Green:', x)
    return x + 3
    print('Yellow:', x * 100)


def red(r, s):
    print('Red:', r, s)
    print('OK', 3 * blue(s))
    return blue(r + s)
    print('Black', r + s)


print(blue(1))
main()
```

Output:

3. What does this code print when it runs? Write your answer in the box to the right. Make notations in the code as desired to show your work.

```
a = 0
b = 3
c = 15
for k in range(4):
    a = a + (10 * k)
    b = b + (a + 1)
    print(k, a, b, c)
    c = c + 1

print('done')
print(a, b, c)
```

Output: