1. [10 points] Write a Python function `drawXcirc` that takes three parameters; an \( x,y \) coordinate for the center of the circle and a radius \( r \), and draws a blue circle with a plus in the center as in the picture below.

For example, calling `drawXcirc(50,75,80)` will draw the figure with the center at \((50,75)\) and with a radius of 80 pixels. And if we call `drawXcirc(100,100,40)` then it will draw the same figure at coordinate \((100,100)\) with a radius of 40.

```python
import pygame
pygame.init()
window = pygame.display.set_mode((400,400))
def drawXcirc(x,y,r):
    pygame.draw.circle(window, (0,0,255), (x,y),r)
    pygame.draw.line(window, (0,0,0), (x,y-r), (x,y+r))
    pygame.draw.line(window, (0,0,0), (x-r,y), (x+r,y))
    pygame.display.update()
drawXcirc(50,75,80)
drawXcirc(100,100,40)
```

2. [5] What is the output of the following Python program (line numbers are on the left). Write your answer in the box to the right of the program. There are no errors in the program, it does print something.

```python
1   def foo(z):
2       y = 3
3       print z, y
4
5       y = 8
6       z = 4
7       foo(5)
```

3. [3] From the program in question 2 name all of the arguments and the line number they appear on.

5 on line 7 in the call to foo. You could have also said z and y on line 3 in the call to print.

4. [3] From the program in question 2 name all of the parameters and the line numbers they appear on.

The only parameter is the z on line 1.

5. [3] From the program in question 2 which lines make up the main program? Give the line numbers.

Lines 5 through 7.
6. [3] From the program in question 2 is there a call to a function somewhere? If so which line(s)?

   Line 7 is the call to function foo and you could have also said line 3 was a call to print.

7. [2] Consider the python statements below. Each line below contains some type of error. What is the error and state whether it is a syntax or run-time error.

   ```python
   i = x * (x - 2)  # Syntax error. Missing parentheses.
   print 7/(2**2 - 4)  # Run-time error because of a divide by zero.
   ```


   ```python
   x = 9218
   sum = 0
   while x > 0:
       sum = sum + 1
       x = x / 10
   print sum,
   ```

9. [2] True/False: The name _8a is a valid variable name. Answer: True

10. [2] What gets printed by the following statement? Write your answer on the line provided.

    ```python
    print 79 % 2
    ```

11. [2] What gets printed by the following statement? Write your answer on line provided.

    ```python
    print 21 % 3
    ```

12. [5] What would get printed by the following Python statement sequence? Write your answer in the box to the right of the python code.

    ```python
    x = 7
    y = 9
    z = x + y / 4 * x - 2 ** 3
    print z
    ```
13. [5] What possible range of values will get printed by the following Python statements? Write your answer in the box to the right.

```python
import random
x = random.random()*100
x = round(x,2) + 1
print x
```

1 through 100.99

14. [5] The program below is supposed to print the word `hello` ten times. It has several problems. Fix the problems by making corrections in the program. Rewrite it in the box.

```python
i = 1
while i > 10:
    print "hello"
    i = i + 1
```

```python
i = 1
while i > 10:
    print "hello"
    i = i + 1
```

15. [10] Write a python program that uses a loop to compute and print the sum of the odd numbers from 1 through 999, \( 1 + 3 + 5 + 7 + \cdots + 997 + 999 \)

```python
sum = 0
I = 1
while I < 1000:
    sum = sum + I
    I = I + 2
```

There are many other correct answers as well.

16. [15] Write a Python program that simulates tossing a coin until ten heads are rolled. After ten heads are rolled your program should print the number of tails that were rolled.

```python
import random

heads = 0
tails = 0

while heads < 10:
    if random.random() < 0.5:
        heads = heads + 1;
    else:
        tails = tails + 1

print tails
```
17. [20] Write a python program that draws 100 circles at random locations within a 600-by-600 surface. Make the circles have a radius of ten taking care not to have any part of the circle be outside of the surface. Use a loop, don't have one hundred lines of `pygame.draw.circle` function calls in your program.

```python
import pygame
import random

def draw_circles(outer_radius):
    pygame.init()
    win = pygame.display.set_mode((600, 600))
    i = 0
    while i < 100:
        x = int(random.random() * 580) + 10
        y = int(random.random() * 580) + 10
        pygame.draw.circle(win, (r,g,b), (x,y), 10)
        i = i + 1

    pygame.display.update()
    pygame.quit()

Notice the line that generates the x and y coordinates of the circle. It generates a random integer between 10 and 590.
```