

1. Take a look at the following program. Circle each identifier, underline each expression, enclose into a box/rectangular the body of the for loop.

```
def main():
    a, b = 10, 2
    c = 10*a + a/b
    for i in range(4):
        c = c/5
        print(c)
main()
```

2. Show the output of the following code fragments:

a) `for i in [1,2,3,4,5]:`  
`print(i*i)`

b) `def loop1():`  
`s = 0`  
`for i in range(100):`  
`s = s + (-1)**i`  
`print("sum=",s)`

c) `word = "Abrakadabra"`  
`for char in word:`  
`print(char," ",end="")`

3. Write a program where the user inputs a positive integer and the program finds the sum of the squares of the numbers up to that integer. For example, if the user enters "5", the program finds

$$1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 1 + 4 + 9 + 16 + 25 = 55.$$

4. Write a program where the user inputs a positive integer and the program finds the sum of the reciprocals of the squares of the numbers up to that integer. For example, if the user enters "5", the program finds

$$\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} = 1.46361111111.$$