

```
main.py
1  ##KESHAV_MATHUR_21107049_ASSIGNMENT-3
2  #QUESTION-1
3
4  a=int(input("Enter the number: "))
5  print(a, "in binary is:", bin(a).replace("0b" , ""))
```

input

Enter the number: 25
25 in binary is: 11001

...Program finished with exit code 0
Press ENTER to exit console.

```
main.py
1 #KESHAV_MATHUR_21107049_ASSIGNMENT-3
2 #QUESTION-2
3
4 while True:
5     expression = input('Enter a mathematical expression:').replace("^", "**")
6     print (expression, "=", end="")
7     print(f" {eval(expression):.4f}")
8     break
```

input

Enter a mathematical expression:2^4+5-10+69
2**4+5-10+69 = 80.0000

...Program finished with exit code 0
Press ENTER to exit console.

main.py

```

1  ##KESHAV_MATHUR_21107049_ASSIGNMENT-3
2  #QUESTION-3
3
4  import math
5  #A)
6  a = (3+4)*(5)
7  print("(3+4)*(5)", "=", a)
8
9  #B)
10 a=int(input("Enter the value of 'n' to calculate the value of '(n(n-1))/2': "))
11 print("For 'n':", a, ", the value of '(n(n-1))/2' is: " , end="")
12 print((a*(a-1))/2)
13
14 #C)
15 r=int(input("Enter the value of 'r' to calculate 4pi(r^2): "))
16 b=4*(math.pi)*(r**2)
17 print("For 'r':", r, ", the value of 4pi(r^2) is: " ,end="")
18 print(f"{b:.4f}")
19
20 #D)
21 A_1=int(input("Value of a in degrees: "))
22 A_2=int(input("Value of b in degrees: "))
23 c=A_1*(math.pi)/180
24 d=A_2*(math.pi)/180
25 e=int(input("Value of 'r': "))
26 print("The value of expression '(r*(cos(a)^2) + r*(sin(b)^2))^1/2': " , math.sqrt((e*(math.cos(c))**2) +e*(math.sin(d))**2))
27
28 #E)
29 print("To find the slope between two points.")
30 X_1=int(input("Enter the point x-axis of point 1: "))
31 Y_1=int(input("Enter the point y-axis of point 1: "))
32 X_2=int(input("Enter the point x-axis of point 2: "))
33 Y_2=int(input("Enter the point y-axis of point 2: "))
34 print("The slope between 2 points is: " , end="")
35 print(f"{(Y_2 - Y_1)/(X_2 - X_1):.4f}")
36

```

main.py

input

```
(3+4)*(5) = 35
Enter the value of 'n' to calculate the value of '(n(n-1))/2': 5
For 'n': 5 , the value of '(n(n-1))/2' is: 10.0
Enter the value of 'r' to calculate 4pi(r^2): 2
For 'r': 2 , the value of 4pi(r^2) is: 50.2655
Value of a in degrees: 60
Value of b in degrees: 30
Value of 'r': 2
The value of expression '(r*(cos(a)^2) + r*(sin(b)^2))^1/2': 1.0
To find the slope between two points.
Enter the point x-axis of point 1: 3
Enter the point y-axis of point 1: 4
Enter the point x-axis of point 2: 5
Enter the point y-axis of point 2: 6
The slope between 2 points is: 1.0000

...Program finished with exit code 0
Press ENTER to exit console.
```

main.py

```
1 #KESHAV_MATHUR_21107049_ASSIGNMENT-3
2 #QUESTION 4
3 for a in range(5):
4     print(a)
5 for b in range(3,10):
6     print(b)
7 for c in range(4,13,3):
8     print(c)
9 for d in range(15,5,-2):
10    print(d)
11 for e in range(5,3,-1):
12    print(e)
13
```

 input

```
0
1
2
3
4
3
4
5
6
7
8
9
4
7
10
15
13
11
9
7
5
4
```

main.py

```

1 #KESHAV_MATHUR_21107049_ASSIGNMENT-3
2 #QUESTION 5
3
4 H_w = 1.00794
5 C_w = 12.0107
6 O_w = 15.9994
7
8 H = int(input("Enter number of hydrogen atoms "))
9 C = int(input("Enter number of carbon atoms "))
10 O = int(input("Enter number of oxygen atoms "))
11
12 weight = H*H_w + C*C_w + O*O_w
13
14 print("The molecular weight of the compound is", weight)

```

input

```

Enter number of hydrogen atoms 3
Enter number of carbon atoms 4
Enter number of oxygen atoms 6
The molecular weight of the compound is 147.06302

```

```

...Program finished with exit code 0
Press ENTER to exit console.

```