

#Q_1# Write a program to take a number as input and convert it into its binary equivalent.

```
num = int(input("Enter any integer here: "))
b = str(bin(num))
print("Binary equivalent of entered number is:",b)
```

```
Enter any integer here: 12
Binary equivalent of entered number is: 0b1100
```

#Q_2# Write an interactive Python calculator program. The program should allow the use to type a mathematical expression, # and then print the value of the expression.

```
operation = input('''
Please enter the mathamatical operation you would like to calsculate:
+ for addition
- for subtraction
* for multiplication
/ for division
''')
```

```
num_1 = float(input('Enter your first number: '))
num_2 = float(input('Enter your second number: '))
```

```
if operation == '+':
    print('{} + {} = '.format(num_1, num_2))
    print(round((num_1 + num_2),2))
```

```
elif operation == '-':
    print('{} - {} = '.format(num_1, num_2))
    print(round((num_1 - num_2),2))
```

```
elif operation == '*':
    print('{} * {} = '.format(num_1, num_2))
    print(round((num_1 * num_2),2))
```

```
elif operation == '/':
    print('{} / {} = '.format(num_1, num_2))
    print(round((num_1 / num_2),2))
```

```
else:
    print('You have not typed a valid operator, please run the program again.')
```

```
Please enter the mathamatical operation you would like to calsculate:
+ for addition
- for subtraction
* for multiplication
```

```
/ for division
*
```

```
Enter your first number: 2.567
Enter your second number: 4.765
2.567 * 4.765 =
12.23
```

QUESTION 3

```
import math
```

```
# a
```

```
print("a.",(3+4)*5)
```

```
# b
```

```
n = int(input("Enter any integer here: "))
ans = (n*(n-1))/2
print("b.",ans)
```

```
#c
```

```
r = int(input("Enter any integer here: "))
exp = 4*math.pi*(r**2)
print("c.",round((exp),2))
```

```
#d
```

```
r = int(input("Enter any integer here: "))
angle_1 = int(input("Enter an Angle in degrees here: "))
angle_2 = int(input("Enter an Angle in degrees here: "))
b = (math.cos((angle_1)*(math.pi/180)))
c = (math.sin((angle_2)*(math.pi/180)))
ans = (r*((b)**2) + r*((c)**2))**(1/2)
print("d.",round((ans),2))
```

```
#e
```

```
y1 = int(input("Enter the integer y1 here: "))
y2 = int(input("Enter the integer y2 here: "))
x1 = int(input("Enter the integer x1 here: "))
x2 = int(input("Enter the integer x2 here: "))
ansr = (y1 - y2)/(x1 - x2)
print("e.",ansr)
```

a. 35

Enter any integer here: 10

b. 45.0

Enter any integer here: 10

c. 1256.64

Enter any integer here: 10

Enter an Angle in degrees here: 30

Enter an Angle in degrees here: 45

d. 3.54

Enter the integer y1 here: 2

Enter the integer y2 here: 3

Enter the integer x1 here: 4

Enter the integer x2 here: 5

e. 1.0

#Q_4# Show the sequence of numbers that would be generated by each of the following range expressions.

a) range (5)

```
for a in range(5):  
    print(a)  
print(" ")
```

b) range (3, 10)

```
for b in range(3,10):  
    print(b)  
print(" ")
```

c) range (4, 13, 3)

```
for c in range(4,13,3):  
    print(c)  
print(" ")
```

d) range (15, 5, -2)

```
for d in range(15,5,-2):  
    print(d)  
print(" ")
```

e) range (5, 3)

```
for e in range(5,3,-1):  
    print(e)  
print(" ")
```

0

1

2

3

4

3

4

5

6

7

8

9

4

7

10

15

13

11

9

7

5

4

#QUESTION 5#

H_w = 1.00794

C_w = 12.0107

O_w = 15.9994

H = int(input("Enter number of hydrogen atoms here: "))

C = int(input("Enter number of carbon atoms here: "))

O = int(input("Enter number of oxygen atoms here:"))

weight = H*H_w + C*C_w + O*O_w

print("The molecular weight of the compound is", weight)

Enter number of hydrogen atoms here: 12

Enter number of carbon atoms here: 6

Enter number of oxygen atoms here:6

The molecular weight of the compound is 180.15588