**Assignment\_3\_21108048[Aditya Anand]**

#QUESTION-1

a=int(input("Enter the number: "))

print(a, "in binary is:", bin(a).replace("0b" , ""))

#QUESTION-2

while True:

expression = input('Enter a mathematical expression:').replace("^" , "\*\*")

print (expression, "=" , end="")

print(f" {eval(expression):.4f}")

break

#QUESTION-3

import math

#A)

a = (3+4)\*(5)

print("(3+4)\*(5)", "=", a)

#B)

a=int(input("Enter the value of 'n' to calculate the value of '(n(n-1))/2': "))

print("For 'n':" , a , ", the value of '(n(n-1))/2' is: " , end="")

print((a\*(a-1))/2)

#C)

pi=22/7

radian = float(input('Radius of sphere: '))

sur\_area = 4 \* pi \* radian \*\*2

print("Surface Area is: ", sur\_area)

#D)

A\_1=float(input("Value of a in degrees: "))

A\_2=float(input("Value of b in degrees: "))

c=A\_1\*(math.pi)/180

d=A\_2\*(math.pi)/180

e=int(input("Value of 'r': "))

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))

#E)

print("To find the slope between two points.")

X\_1=int(input("Enter the point x-axis of point 1: "))

Y\_1=int(input("Enter the point y-axis of point 1: "))

X\_2=int(input("Enter the point x-axis of point 2: "))

Y\_2=int(input("Enter the point y-axis of point 2: "))

print("The slope between 2 points is: " , end="")

print(f"{(Y\_2 - Y\_1)/(X\_2 - X\_1):.4f}")

#QUESTION 4

for a in range(5):

print(a)

for b in range(3,10):

print(b)

for c in range(4,13,3):

print(c)

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

print(d)

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

print(e)

#QUESTION 5

H\_w = 1.00794

C\_w = 12.0107

O\_w = 15.9994

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

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

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

weight = H\*H\_w + C\*C\_w + O\*O\_w

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