import math

import cmath

#1

pi = math.pi

radius = eval(input("enter the radius of a circle and I will calculate the area:"))

area = math.pi \* radius \*\* 2

print("Area =", area) #format the output to have 2 digits to the right of the decimal point

#2

tau = 2 \* pi

#3

PV = eval(input("enter present value:")) # 50000

r = eval(input("enter interest rate:")) # (0. 1)

t = int(input("enter time in years:")) # 3

FV = PV \* math.e \*\* (r \* t)

print("Future value=", FV)

#4

print("nan value=", math.nan, "type=", type(math.nan))

print("nan value=", math.inf, "type=", type(math.inf))

#5

a = eval(input("enter value for floor and ceiling:"))

print("entered value=", a, "floor=", math.floor(a), "ceiling=", math.ceil(a))

#6

print("gcd(25, 120) =", math.gcd(25, 120))

#7

print(f"fabs(-3.2)={math.fabs(-3.2)} fabs(5.4)={math.fabs(5.4)}")

#8

print("log(10)=", math.log(10), "log(144)=", math.log(144), "log(20, 5)=", math.log(20, 5))

#9

x = eval(input("enter value for trigonometric functions:"))

print("calculated value=", (math.sin(x) \*\* 2 + math.cos(x) \*\* 2))

#10

a = eval(input("enter value for hyperbolic function:"))

print(f"cosh {a} + sinh {a} = {math.cosh(a) + math.sinh(a)} and e square {a} = {math.pow(math.e, a)}")

# Complex Numbers

print((4-5j) \* (12+11j))

print((-3-1j) - (6-7j))

print((1+4j) - (-16+9j))

print(8j \* (10+2j))

print((-3-9j) \* (1+10j))

print((2+7j) \* (8+3j))

print(7 - 1j\*\*2 + 10j)

print(1 + 5j - 3j)

print(6 + 7j\*\*8 - 1j)

* Result

enter the radius of a circle and I will calculate the area:2

Area = 12.566370614359172

enter present value:50

enter interest rate:0.6

enter time in years:2

Future value= 166.00584613682736

nan value= nan type= <class 'float'>

nan value= inf type= <class 'float'>

enter value for floor and ceiling:5.6

entered value= 5.6 floor= 5 ceiling= 6

gcd(25, 120) = 5

fabs(-3.2)=3.2 fabs(5.4)=5.4

log(10)= 2.302585092994046 log(144)= 4.969813299576001 log(20, 5)= 1.8613531161467862

enter value for trigonometric functions:20

calculated value= 1.0

enter value for hyperbolic function:50

cosh 50 + sinh 50 = 5.184705528587072e+21 and e square 50 = 5.184705528587058e+21

(103-16j)

(-9+6j)

(17-5j)

(-16+80j)

(87-39j)

(-5+62j)

(8+10j)

(1+2j)

(5764807-1j)