Functions in Python

* 1. Write binary numbers. Print its decimal.

>>> 0b0100111

39

* 1. Write octal numbers. Print its decimal.

>>> 0o5623

2963

* 1. Write hexadecimal numbers. Print its decimal.

>>> 0x89Ab56

9022294

* 1. Write decimal number. Use functions to convert it to binary.

>>> bin(1980)

'0b11110111100'

* 1. Write decimal number. Use functions to convert it to octal.

>>> oct(1980)

'0o3674'

* 1. Write decimal number. Use functions to convert it to hexadecimal.

>>> hex(1980)

'0x7bc'

* 1. Divide two integers and output quotient and remainder using function.

>>>divmod(152,34)

(4, 16)

* 1. Convert the string to integer using function.

>>>int("A4",16)

164

* 1. Find absolute value of an integer.

>>> abs(-60.0987)

60.0987

* 1. Round up to n decimal digits.

>>> round(60.1256989,3)

60.126

* 1. Use pow function which uses two parameters.

>>> pow(5,2)

25

* 1. Use pow function which uses three parameters.

>>> pow(5,2,2)

1

* 1. Find ceiling and floor of a decimal number.

>>>import math

>>> math.floor(2.4)

2

>>> math.ceil(2.4)

3

* 1. Use all basic trigonometric function.

>>> import math

>>> math.cos(60)

-0.9524129804151563

>>> math.cosh(60)

5.710036949078421e+25

>>> math.sin(60)

-0.3048106211022167

>>> math.sinh(60)

5.710036949078421e+25

>>> math.tan(60)

0.320040389379563

>>> math.tanh(60)

1.0

>>> math.acos(0.3)

1.2661036727794992

>>> math.asin(0.3)

0.3046926540153975

>>> math.atan(0.3)

0.2914567944778671

>>> math.asinh(0.1)

0.09983407889920758

>>> math.acosh(2)

1.3169578969248166

>>> math.atanh(0.5)

0.5493061443340549

>>> math.atan2(3,4)

0.6435011087932844

* 1. Convert radians to degree.

>>> import math

>>> math.degrees(60)

3437.746770784939

* 1. Do the reverse of the above.

>>> import math

>>> math.radians(340)

5.934119456780721

* 1. Find absolute value of a floating-point number.

>>> import math

>>> math.fabs(-34.56)

34.56

* 1. Find modulus of a floating-point number.

>>> import math

>>> math.fmod(-3.45,2)

-1.4500000000000002

* 1. Take a floating-point number and output mantissa and exponent separately using function.

>>> import math

>>> math.frexp(5.6)

(0.7, 3)

* 1. Do the reverse of the above.

>>> import math

>>> math.ldexp(2,5)

64.0

* 1. Using function output the fractional part and whole part separately.

>>> import math

>>> math.modf(5.5)

(0.5, 5.0)

* 1. Find logarithm of a number mentioning base. Use other logarithmic functions.

>>> import math

>>> math.log(4,2)

2.0

>>> math.log10(6)

0.7781512503836436

>>> math.log1p(4)

1.6094379124341003

>>> math.log2(8)

3.0

* 1. Find gcd of two numbers.

>>> import math

>>> math.gcd(125,100)

25

* 1. Find factorial of a number.

>>> import math

>>> math.factorial(8)

40320

* 1. Find hypotenuses.

>>> import math

>>> math.hypot(3,4)

5.0

* 1. Truncate a floating point number.

>>> import math

>>> math.trunc(4.789)

4

* 1. Find square root of a number.

>>> math.sqrt(2250)

47.43416490252569

* 1. Find gamma function of x.

>>> import math

>>> math.gamma(4)

6.0

* 1. Find natural logarithm of the absolute value of the gamma function of x.

>>> import math

>>> math.lgamma(4)

1.7917594692280554

* 1. Print the mathematical constants.

>>> import math

>>> math.e

2.718281828459045

>>> math.pi

3.141592653589793

>>> math.tau

6.283185307179586

>>> math.inf

inf

>>> math.nan

Nan

* 1. Add two decimal numbers by importing decimal and not importing decimal. See the difference.

>>> import decimal

>>> a=decimal.Decimal(123)

>>> b=decimal.Decimal(486.7878997656757657657576575)

>>> a+b

Decimal('609.7878997656757746881339699')

>>> a=123

>>> b=486.7878997656757657657576575

>>> a+b

609.7878997656758

* 1. Find conjugate of a complex number taken as input.

>>> import math

>>> a=5+2j

>>> a.conjugate()

(5-2j)

* 1. Take a complex number. Print its real and imaginary part.

>>> import math

>>> a=5+2j

>>> a.real

5.0

>>> a.imag

2.0

Programs:

1. Write a program which takes temperature as input as Centigrade. Convert it to Fahrenheit.
2. Write a program to prompt the user for hours and wages as rate per hour to compute gross pay.
3. Write a program to prompt the user for principal amount, annual interest, and years. Print total

Solution:

1.

#Python Program to convert temperature in celsius to fahrenheit

# change this value for a different result

celsius = 37.5

# calculate fahrenheit

fahrenheit = (celsius \* 1.8) + 32

print('%0.1f degree Celsius is equal to %0.1f degree Fahrenheit' %(celsius,fahrenheit))

2.

hours=input(“Enter total hours”)

wage=input(“Enter rate per hour”)

print(“The gross pay is: ”+ round(hours\*wage,2))

3.

interest and total amount including principal.

principal=input(“Enter principal”)

interest=input(“Enter Annual Interest”)

years=input(“Enter Number of Years”)

Total=principal\*years\*interest/100

print(“The total interest is:” + Total)

Gross=Total+principal

print(“The total amount is:” + Gross)