Write a Python program to solve the equation z = |x y| * (x + y)

In [1]:

```python
import math

def solve_equation(x, y):
    z = abs(x * y) * (x + y)
    return z

# Get the input values for x and y
x = float(input("Enter the value of x: "))
y = float(input("Enter the value of y: "))

# Call the function to solve the equation
result = solve_equation(x, y)

# Print the result
print("The solution to the equation is z =", result)
```

```
Enter the value of x: 10
Enter the value of y: 20
The solution to the equation is z = 6000.0
```

Write a Python program to calculate the surface volume and area of a cylinder. Formula: Volume = pi * radius * radius * height Surface area of a cylinder = ((2*pi*radius)*height) + ((pi*radius**2)*2)

In [2]:

```python
import math

def calculate_cylinder_volume(radius, height):
    volume = math.pi * radius * radius * height
    return volume

def calculate_cylinder_surface_area(radius, height):
    surface_area = ((2 * math.pi * radius) * height) + ((math.pi * radius**2) * 2)
    return surface_area

# Get the input values for radius and height
radius = float(input("Enter the radius of the cylinder: "))
height = float(input("Enter the height of the cylinder: "))

# Call the functions to calculate the volume and surface area
volume = calculate_cylinder_volume(radius, height)
surface_area = calculate_cylinder_surface_area(radius, height)

# Print the results
print("Cylinder Volume:", volume)
print("Cylinder Surface Area:", surface_area)
```

```
Enter the radius of the cylinder: 3
Enter the height of the cylinder: 6
Cylinder Volume: 169.64600329384882
Cylinder Surface Area: 169.64600329384882
```

Write a Python program to calculate the wind chill index. The given program calculates the wind chill index using the temperature and wind speed entered by the user. The wind chill index is an estimate of how cold the air feels to the human body, taking into account the cooling effect of the wind on the skin. prompts the user to enter the wind speed in kilometers per hour and the temperature in degrees Celsius using the input() function. The program calculates the wind chill index using the formula: $13.12 + 0.6215t - 11.37v^{0.16} + 0.3965tv^{0.16}$ where t is the temperature in degrees Celsius and v is the wind speed in kilometers per hour. Output The calculated wind chill index is then rounded to the nearest integer

In [3]:

```python
def calculate_wind_chill_index(temperature, wind_speed):
    wind_chill_index = 13.12 + 0.6215 * temperature - 11.37 * wind_speed**0.16 + 0.3965
    return round(wind_chill_index)

# Get the input values for temperature and wind speed
temperature = float(input("Enter the temperature in degrees Celsius: "))
wind_speed = float(input("Enter the wind speed in kilometers per hour: "))

# Call the function to calculate the wind chill index
wind_chill_index = calculate_wind_chill_index(temperature, wind_speed)

# Print the result
print("Wind Chill Index:", wind_chill_index)
```

```
Enter the temperature in degrees Celsius: 20
Enter the wind speed in kilometers per hour: 3
Wind Chill Index: 21
```

In [ ]: