

Python Notes: Functions

1.) Create function:

The diagram illustrates the components of a Python function. A box contains the following code:

```
def my_function():  
    print("Hello from a function")  
  
my_function()
```

Annotations with red curly braces identify the parts:

- Function Name:** Points to `my_function` in the `def` statement.
- Body statement:** Points to the indented `print` statement.
- Call function:** Points to the `my_function()` call at the bottom.

2.) function with parameters & arguments:

The diagram illustrates a function with parameters and arguments. A box contains the following code:

```
def my_function(fname, lname):  
    print("I am " + fname + " " + lname)  
  
my_function("Advaspire", "Student")
```

Annotations with red curly braces identify the parts:

- Parameters:** Points to `fname, lname` in the function definition.
- Body statement:** Points to the `print` statement.
- Arguments:** Points to `"Advaspire", "Student"` in the function call.

Functions

1. A parameter is the variable listed inside the parentheses in the function definition.
2. An argument is the value that is sent to the function when it is called.

3.) function with return values:

```
def my_function(x):  
    return 5 * x  
  
print(my_function(3))  
print(my_function(5))  
print(my_function(9))
```

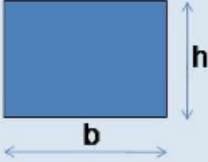
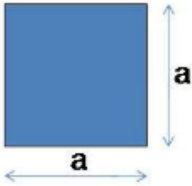
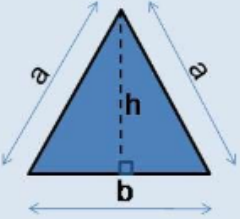
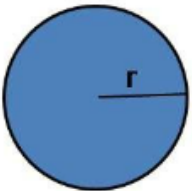
} Expected Result

4.) Sample: calculates the area of a rectangle with input

```
def calculate_rectangle_area(length, width):  
    area = length * width  
    return area  
  
print("Im math bot, help you calculate the rectangle area")  
print("tell me the length")  
user_length = int(input())  
print("tell me the width")  
user_width = int(input())  
print("Area of rectangle:", calculate_rectangle_area(user_length, user_width))
```

```
Im math bot, help you calculate the rectangle area  
tell me the length  
122  
tell me the width  
33  
Area of rectangle: 4026
```

Mission:

| SHAPE | NAME | AREA | PERIMETER |
|---|-----------|---------------------------------|-------------------------|
|  | RECTANGLE | $h \times b$ | $2 \times (h + b)$ |
|  | SQUARE | $a \times a$ | $4 \times a$ |
|  | TRIANGLE | $\frac{1}{2} \times h \times b$ | $a + a + b$ |
|  | CIRCLE | $\pi \times r^2$ | $2 \times \pi \times r$ |

For circle: $\pi = 3.14$

Task 1:

Area Shapes Calculator

1. Rectangle
2. Square
3. Triangle
4. Circle

Enter your choice (1-4):

1

Enter the length of the rectangle:

10

Enter the width of the rectangle:

20

Area of rectangle: 200.0

- Use function with return to define the shapes formula

Task 2:

Shapes Calculator

1. Rectangle

2. Square

3. Triangle

4. Circle

5. Quit

Enter your choice (1-5): 1

Do you want to calculate area or perimeter?

1. Area

2. Perimeter

Enter your choice (1-2): 1

Enter the length of the rectangle: 10

Enter the width of the rectangle: 20

Area of rectangle: 200.0

Shapes Calculator

1. Rectangle

2. Square

3. Triangle

4. Circle

5. Quit

Enter your choice (1-5): 5

Thank you for using the Shapes Calculator. Goodbye!