

Python – Basic Functions

Purpose

This lab was designed to practice coding an assortment of functions.

Description

Write a function called `is_freezing(c)` that takes a temperature in degrees Celsius and returns true or false depending on whether it is freezing.

Write a function called `is_small(n)` that takes a floating-point number and returns true if it is in the range `[-1, 1]` and false otherwise.

Write a function called `is_large(n)` that takes a floating-point number and returns true if it is greater than 2^{30} (approx. 1 billion) and false otherwise.

Write a function called `is_lucky(n)` that takes an integer in the range of `(-1000, 1000)` and returns true if any of the digits contains a 7 and false otherwise.

Write a function called `is_primary_color(color)` that takes a lowercase string and returns true if the string is equal to any of the primary colors (red, blue, yellow) and false otherwise.

Write a function called `round_up(n)` that takes a floating-point number and returns the smallest integer greater than or equal to a given number.

Write a function called `power(x, y)` that takes two integers and returns x to the power of y .

Write a function `volume_of_a_cylinder(r, h)` that calculates and returns the volume of a cylinder given the radius and height. Round the calculation to 2 decimal places.

Write a function `volume_of_a_cone(r, h)` that calculates and returns the volume of a cone given the radius and height. Round the calculation to 2 decimal places.

Write a function `volume_of_a_sphere(r)` that calculates and returns the volume of a sphere given the radius.

Write a function `diagonal_of_a_square(side)` that calculates and returns the diagonal of a square given the length of a side. Round the calculation to 2 decimal places. The default square has a side length of 1.

Write a function `perimeter_of_a_triangle(a, b, c)` that calculates and returns the perimeter of a triangle. The default triangle is a 3-4-5 right triangle.

Write a function `area_of_a_triangle(a, b, c)` that calculates and returns the area of a triangle. The area of any triangle can be computed with Heron's formula.

Area = $\sqrt{s(s-a)(s-b)(s-c)}$ where s is the semi-perimeter(half of the perimeter). Round the calculation to 2 decimal places. The default triangle is a 3-4-5 right triangle.

Program Shell

Create a file called basic_functions.py.

Run test_basic_functions.py.

Sample Execution

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Ran 13 tests in 0.005s

OK
```