Python Variables Exercises

1. Define a variable miles and write an assignment statement that defines a variable feet whose value is the number of feet in miles miles.

2. Define three variables: *hours*, *minutes* and *seconds*, write an assignment statement that updates the variable *total_seconds* to have a value corresponding to the total number of seconds for *hours* hours, *minutes* minutes and *seconds* seconds.

3. Define variables width and height that are the lengths of the sides of a rectangle, write an assignment statement that defines a variable perimeter whose value is the perimeter of the rectangle in centimeters.

4. Define the variables width and height that are the lengths of the sides of a rectangle, write an assignment statement that defines a variable area whose value is the area of the rectangle in square centimeters.

5. Define the constant π as 3.14159 and the variable radius corresponding to the radius of a circle in centimeters, write an assignment statement that defines a variable circumference whose value is the circumference of a circle with radius radius in centimeters.

6. Define the constant π as 3.14159 and the variable radius corresponding to the radius of a circle in centimeters, write an assignment statement that defines a variable area whose value is the area of a circle with radius radius in square centimeters.

7. Define the variables *present_value*, *annual_rate* and *years*, write an assignment statement that define a variable *future_value* whose value is *present_value* dollars invested at *annual_rate*, *percent*, *interest*, compounded annually for years years.

8. Define the variables *first_name* and *last_name*, write an assignment statement that defines the variable *name_tag* whose value is the string "My name is % %." where the *percents* should be replaced by *first_name* and *last_name*.

9. Define the variables *name* (a string) and *age* (a number), write an assignment statement that defines a variable statement whose value is the string "% is % years old." where the percents should be replaced by name and the string form of age.

10. Given the variables x_0, y_0, x_1, and y_1, write an assignment statement that defines a variable distance whose values is the distance between the points (x_0, y_0) and (x_1, y_1).

11. Challenge: Heron's formula states the area of a triangle is

$$\sqrt{p(p-a)(p-b)(p-c)}$$

where a, b and c are the lengths of the sides of the triangle and $p = \frac{1}{2}(a + b + c)$ is the semi-perimeter of the triangle. Given the variables x_0, y_0, x_1,y_1,x_2, and y_2, write a Python program that computes a variable area whose value is the area of the triangle with vertices (x_0,y_0), (x_1,y_1) and (x_2,y_2).