

Practice Exercises for Variables and Assignments

Solve each of the practice exercises below. Each problem includes three CodeSkulptor links: one for a template that you should use as a starting point for your solution, one to our solution to the exercise, and one to a tool that automatically checks your solution.

1. Given a template that pre-defines a variable `miles`, write an assignment statement that defines a variable `feet` whose value is the number of feet in `miles` miles. [Miles to feet template](#) --- [Miles to feet solution](#) --- [Miles to feet \(Checker\)](#)
2. Given a template that pre-defines 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. [Hours to second template](#) --- [Hours to second solution](#) --- [Hours to second \(Checker\)](#)
3. Given a template that pre-defines the 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 inches. [Perimeter of rectangle template](#) --- [Perimeter of rectangle solution](#) --- [Perimeter of rectangle \(Checker\)](#)
4. Given a template that pre-defines 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 inches. [Area of rectangle template](#) --- [Area of rectangle solution](#) --- [Area of rectangle \(Checker\)](#)
5. Given a template that pre-defines the constant `PI` and the variable `radius` corresponding to the radius of a circle in inches, write an assignment statement that defines a variable `circumference` whose value is the circumference of a circle with radius `radius` in inches. [Circumference of circle template](#) --- [Circumference of circle solution](#) --- [Circumference of circle \(Checker\)](#)
6. Given a template that pre-defines the constant `PI` and the variable `radius` corresponding to the radius of a circle in inches, write an assignment statement that defines a variable `area` whose value is the area of a circle with radius `radius` in square inches. [Area of circle template](#) --- [Area of circle solution](#) --- [Area of circle \(Checker\)](#)

7. Given the pre-defined 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. [Future value template](#) --- [Future value solution](#) --- [Future value \(Checker\)](#)
8. Give the pre-defined 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`. Note that, in Python, you can use the `+` operator on strings to concatenate (i.e. join) them together into a single string. [Name tag template](#) --- [Name tag solution](#) --- [Name tag \(Checker\)](#)
9. Given the pre-defined 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`. [Name and age template](#) --- [Name and age solution](#) --- [Name and age \(Checker\)](#)
10. Given the variables `x0`, `y0`, `x1`, and `y1`, write an assignment statement that defines a variable `distance` whose values is the distance between the points (x0,y0) and (x1,y1). [Point distance template](#) --- [Point distance solution](#) --- [Point distance \(Checker\)](#)
11. **Challenge:** [Heron's formula](#) states the area of a triangle is $s(s-a)(s-b)(s-c)^{\frac{1}{2}}$ where `a`, `b` and `c` are the lengths of the sides of the triangle and $s = \frac{1}{2}(a+b+c)$ is the semi-perimeter of the triangle. Given the variables `x0`, `y0`, `x1`, `y1`, `x2`, and `y2`, write a Python program that computes a variable `area` whose value is the area of the triangle with vertices (x0,y0), (x1,y1) and (x2,y2). (Hint: our solution uses five assignment statements.) [Triangle area template](#) --- [Triangle area solution](#) --- [Triangle area \(Checker\)](#)