Practice exercises for variables and assignments

Help Center

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

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`.

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

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