

Computer Science 220
Fall 2012
Program 5

Due: Tuesday, October 9, 2012 at 10:50 AM

Learning objectives:

- to develop a Python program that uses the graphics package
- to practice writing functions

Assignment:

The text has a program, `triangle.py`, on pages 103-104. A modified version that does not use coordinate transformation is available on Oaks.

Modify this program so that it defines and calls a function, `makeTriangle(p1, p2, p3)`, to create the triangle. Three points are passed to the function and it returns a triangle (as a Polygon object). Set the color of the triangle in the function to whatever you like. In `main()`, call the function and then draw the triangle that the function returns.

Next, write a function, `distance(p1, p2)`, that is passed two points and returns the Euclidean distance between the points.

Now, write functions, `perimeter(tri)` and `area(tri)`, to compute the perimeter and area of a triangle, respectively. Each of these functions must receive a single parameter, the triangle (as a Polygon object). Look at the text, section 4.8.2 (Polygon Methods), to see how to get points of a triangle. Both `perimeter(tri)` and `area(tri)` must call the `distance(p1, p2)` function.

Call the perimeter and area functions in `main()` and then display these two values near the bottom of the graphics window.

Submission:

Submit `triangle.py` to your class account.

Policies:

The policies given in Program 1 are in effect for this and all assignments. Do not forget to include your name and the Certification of Authenticity.