Wentworth Institute of Technology
COMP1000 – Computer Science I
Fall 2017, Kreimendahl

Lab Assignment 2

In this assignment you are to write a program to solve the following problem. As with all lab assignments, remember the following submission steps:

- Make sure your code passes at least all the provided JUnit tests
- Save, commit, and push all code changes
- Confirm the latest code is visible via the "Files" section of your repository website
- Confirm that the repository is private, and that the instructor has Developer access
- Note: you do **NOT** need to document your code

Problem a (`LA2a.java`)

Write a program to compute the area, perimeter, and interior angle of a regular polygon. First, have the user supply the number of sides of the polygon (a whole number, which must be 3 or greater) and the side length (any positive number).

Then, compute the **area** via the following equation:

$$\text{Area} = \frac{s^2 n}{4\tan(\frac{180^\circ}{n})} = \frac{s^2 n}{4\tan(\frac{\pi}{n})}$$

where *n* is the number of sides and *s* is the side length. Note that the equations are equivalent, with the first using degrees and the second using radians.

Then, compute the **perimeter** via the following equation:

$$\text{Perimeter} = ns$$

and then the **interior angle** (in degrees) via the following equation:

$$\text{Interior Angle} = 180 - \frac{360}{n}$$

So, an example run of your program would look like the following:

```
Enter number of sides: 3
Enter side length: 1
Area: 0.433
Perimeter: 3.000
Interior Angle: 60.000 degrees
```

You should express the outputs using exactly three decimal places (rounding where necessary). Tips: (i) the `Math.tan()` method will compute the tangent of a value in radians, (ii) the `Math.toRadians()` method will convert a value in degrees to radians, and (iii) the `Math.PI` constant can be used for pi (π).