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**Triangle Calculator Description**

Triangle Calculator is a program designed to solve a triangle when given the least information possible. When given at least one side length and two angles, Triangle calculator can calculate the remaining two sides and last angle, along with the perimeter and area of said triangle. It will also calculate the triangle shape (isosceles, scalene, or equilateral) and type (right, acute, or obtuse). Triangle Calculator then displays this information in a clean, clear fashion for the user to read, complete with the proper units and two significant figures in the decimal place. The program accomplishes this by using four types of variables, several nested “if” statements, and multiple algebraic and trigonometric formulas.

**Instructions**

1. Upload source file and open in Windows Visual.
2. Select either “Local Windows Debugger” or “Start Without Debugger.”
3. Triangle Calculator with ask for your name. Input whatever name or title you like.
4. Triangle Calculator will ask for the units of measurement used on the triangle you are trying to solve. When you have identified the units you would like to use, input it into the program.
5. Triangle Calculator will ask if you have at least one side to begin solving. If you have this, enter “Y” or “y” and press enter.
   1. If you do not know the data, consult your triangle to find a measurement. Calculations cannot be complete without at least one side measurement.
6. Triangle Calculator will ask for the number of sides you have a measurement for. Input the number and hit enter.
7. Triangle Calculator will then ask for the measurements for each side you have. Input the data for each, as needed.
   1. NOTE: In the case of inputting all three sides, the sum of two sides must be greater than the third.
8. After inputting the side length data, Triangle Calculator will ask if you have the measurement for the triangle's angles. If this data is available, input the required data (in degrees) as needed.
   1. NOTE: Angles must add up to a total of 180 degrees.
9. Triangle Calculator will display the results. Record as necessary.

**List of Inputs and Outputs**

* **Possible Inputs:**
  + Side Length 1
  + Side Length 2
  + Side Length 3
  + Angle A
  + Angle B
  + Angle C
* **Outputs:**
  + Side Length 2
  + Side Length 3
  + Angle A
  + Angle B
  + Angle c
  + Perimeter
  + Area
  + Triangle Shape
    - Isosceles
    - Scalene
    - Equilateral
  + Triangle Type
    - Right
    - Obtuse
    - Acute