

Triangles Fun – 100 Points

Write one complete program called <lastname_1.cpp> to calculate and output the perimeter, the area, the angles of a triangle in degrees, the sum of the three angles in degrees, the radius of the inscribed circle, the radius of the circumscribed circle, and the positive difference in radii using a suitable format for each calculated value by inputting these values for a, b, and c:

ان امر مشروطه

1. a=6.0, b=7.0, c=7.0
2. a=7.0, b=24.0, c=25.0
3. a=8.0, b=9.0, c=7.0
- X 4. a=b=c=6.0

Equations:

$$\text{perimeter} = a + b + c$$

$$s = (a + b + c)/2$$

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

$$\text{AngleA} = \arccos((b^2 + c^2 - a^2)/(2bc))$$

$$\text{AngleB} = \arccos((a^2 + c^2 - b^2)/(2ac))$$

$$\text{AngleC} = \arccos((a^2 + b^2 - c^2)/(2ab))$$

$$\text{Inner Radius} = \text{area}/s$$

$$\text{Outer Radius} = abc/(4 \times \text{area})$$

Expected Comments

1. Author of Program
2. Date Started
3. Date Completed
4. Purpose of program – in your own words
5. Pseudo-code for program (for this one, it will be close to actual code including expected inputs and outputs)
6. Libraries used including functions/constants used and briefly why
7. Variables and constants created by you with type and brief purpose for each one
8. Other – will be considered in later programs

Item to turn-in for grading

Using Sakai's assignment drop box for Program 1, submit your .cpp file code to me (submitting the entire folder instead will cost you all credit for this assignment). If your program has all four sets of calculations, you will lose 25% of the available points – use just one set!