Computing the deflection of a steel cantilever beam attached to the wall.

As usual, work on praktikum.ee.itb.ac.id server.

This lab will focus on choosing items from a menu and making choices using IF statements. The user will be presented with a menu (see below) at runtime. The choices in the menu offer the user a way of computing the area of a triangle with three different methods with differing user input. The menu will look like:

```
Compute the area of a triangle given:
A. The length of all three sides (SSS)
B. Two angles and the included side (ASA)
C. Two sides and the included angle (SAS).
Select A, B, or C --->
```

If the user picks choice (A), prompt the user for the length of all three sides and compute the area as follows:

$$Area = \sqrt{x(x-a)(x-b)(x-c)}$$

where

$$x = 0.5(a+b+c)$$

and **a**, **b**, and **c** are the lengths of the three sides. The output for this case will look like:

```
Side a        Side b        Side c        Area
3.000         4.000         5.000         6.000
```

Choosing (B) from the menu means asking the user for two angles **beta** and **gamma** (in degrees) and the length of the included side (**a**). The formula for the area in such a case is

$$Area = \frac{a^2 \sin(\gamma)\sin(\beta)}{2\sin(\alpha)}$$

To compute angle **alpha**, recall that the sum of all angles in a triangle is 180° The output will look like:

```
Angle beta    Angle gamma    Side a      Area
90.000        53.130         3.000       6.000
```

Choosing (C) from the menu means asking the user for the length of two sides (**a** and **b**) and the included angle, **gamma**. The area is computed:

$$Area = 0.5ab\sin(\gamma)$$

The output will look like:

```
Side a        Side b        Angle gamma        Area
4.000         5.000         36.870             6.000
```

Pay attention to the formatting of the floating-point values! All values representing angles will be entered and printed in degrees. Test the code on triangles which you know the area and make sure

you get the same value for area with each method of computation. Run and submit the code to the lab instructor when you are done.

Remember to include the `math.h` header file at the top of your source code and use the `-lm` option when you make the executable file.