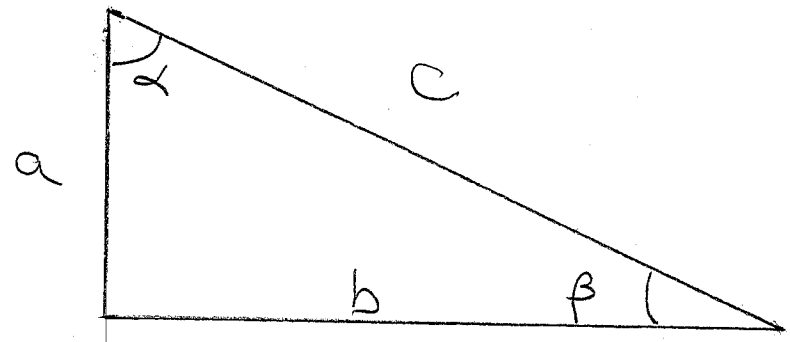
For this assignment, you should print out your scripts. Note that while you are given specific test cases to run, your scripts should work for any valid set of inputs. Paste the output from the requested sample runs at the end of your script file. Be sure to put comment symbols (%) in front of these lines that you paste in.

1) (5 pts) Write a script that will accept the values of c and a as input and outputs the values of the remaining triangle side and the two angles α and β. The angles should be output in degrees. Test your script for $c = 4$ and $b = 1$.



2) (3 pts) Write a script that will ask the user to input a value for n. The script should divide the interval $[-0.9, 0.9]$ into n equally spaced points and store these in x. It should then tabulate

$$y = \frac{x}{x^2 - 1}.$$

Plot the resulting graph (include axis labels on the plot). Run your script for $n = 51$. Hand in a copy of this plot with your script.

3) (5 pts) Write a script that will ask the user to input the coordinates of two points $(x_1, y_1), (x_2, y_2)$ in the x-y plane and then computes the slope and y-intercept of the line bewteen them. You can assume that the slope of the line won't be infinite. Test your script using the points $(-4, 2), (6, 3)$.

4) (5 pts) Another important formula in discrete mathematics is the sum of the squares of the first n natural numbers:

$$\sum_{i=1}^{n} i^2 = 1^2 + 2^2 + 3^2 + 4^2 + \cdots + n^2 = \frac{n(n+1)(2n+1)}{6}. \tag{1}$$

Similar to the problem on HW7, write a script that does the following:

a) Asks the user to input a value for `n`.

b) Generates the vector `x = [1 2 3 4 ... n]`. Hint: Use an array index for this.

c) Uses the built-in `sum` (see `help sum`) function to sum the squares of the elements of `x`.

d) Computes the fraction on the right-hand side of Equation (1).

e) Displays the values from parts c) and d).

Run your script for $n = 5$ and $n = 22$.