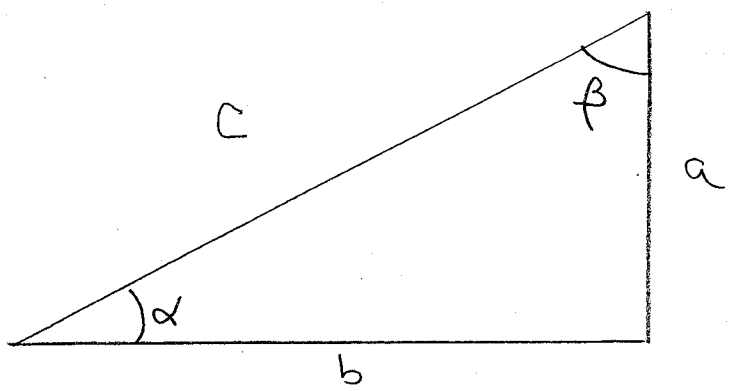

You should get into the habit of configuring your computer to show file extentions. To do this, open any folder in Windows. Somewhere below the main color bar, you should be able to see a menu item called `View`. Click on this, then check the box that says `File name extensions`. This will make your life easier in the long run.

For this assignment, you should email all of your scripts as attachments. Run each script for the indicated test cases. Paste your sample output at the end of your script file. Comment out these sample output lines.

Remember that to display the result of a calculation, you can just leave off the ; at the end of the command. You can also just type the variable name at the command line.

```
>> a = 1;
>> a
a =
     1
>>
```

1) (4 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 accepts the value of a, b and c as input then generates a plot of

$$y = ax^2 + bx + c$$

on the interval $x \in [-2, 2]$. Test your script for $a = -2, b = 1, c = 5$. You should save your plot as a .jpg image and include it in your submission.

3) (5 pts) An important formula in discrete mathematics is the sum of the first n natural numbers:

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

Fortunately, MATLAB makes it easy to verify (which is not the same as prove) that this formula is true. 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` function to sum the elements of `x`.

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

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

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

4) (4 pts) Repeat Problem 3 for the equation

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

Note that you are computing a different sum here, but you can make use of the `.*` or `.^` operator before using the `sum` function.