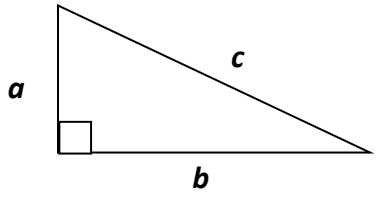
Problem Set 1 Exercise #04: Hypotenuse

Reference: Lecture 3 notes

Learning objective: Program structure; Math functions

Estimated completion time: 15 minutes

Problem statement:



For any right angle triangle with three sides a, b and c as shown in the above figure, side c is known as the hypotenuse (i.e., the side opposite the right angle). The Pythagoras' Theorem may be written as a mathematical equation relating the lengths of the three sides a, b and c:

$$a^2 + b^2 = c^2$$

Using this equation, we can find any unknown side as long as the lengths of the other two sides are known. For instance, we can find the length of side c if we know the lengths of sides a and b using the equation below:

$$c = \sqrt{a^2 + b^2}$$

Write a program **hypotenuse.c** that calculates the hypotenuse for a right angle triangle with known sides a and b (all are of type **double**). Please correct your output of real number to two decimal places.

Important notes:

We strive to use descriptive and meaningful variable names to improve the readability of our programs. However, this exercise already gives you variables a, b and c and their meanings are straightforward. Hence you may use them directly in your program.

If you want to define any other variable not mentioned in the problem statement, choose descriptive names.

Sample run #1:

```
Enter a and b: 3.0 4.0
c = 5.00
```

Sample run #2:

```
Enter a and b: 8 8
c = 11.31
```