**1. Grade average**

Write a program that prompts the user to read five grades (double values) and print out the average of those grades. Here is an example of execution of this program (user input is in bold):

Enter the first grade: **12.0**  
Enter the second grade: **11.5**  
Enter the third grade: **13.4**  
Enter the fourth grade: **10.8**  
Enter the fifth grade: **12.9**  
  
The average grade is 12.12

You should try to use as less variable as possible. The average should be displayed with two decimal positions.

**2. Rainfall**

Write a program that calculates the average rainfall for three months. The program should ask the user to enter the name of each month, such as January or February, and the amount of rain (in inches) that fell each month. Here is an example of execution of this program (user input is in bold):

# This program calculates the average rainfall for three months  
  
Enter the name of the 1st month: **January**  
Enter the rainfall for January: **9.7**  
Enter the name of the 2nd month: **February**  
Enter the rainfall for February: **12.4**  
Enter the name of the 3rd month: **March**  
Enter the rainfall for March: **11.9**  
  
The average rainfall for January, February, and March is 11.33 inches

**3. Temperature conversion**

Write a program that converts Celsius temperatures to Fahrenheit temperatures. The formula is

Celsius to Fahrenheit

where *F* is the Fahrenheit temperature and *C* is the Celsius temperature. Here is an example of execution of this program(user input is in bold):

Enter the temperature in Celsius: **32.5**  
  
32.5 degrees Celsius = 90.5 degrees Fahrenheit

**4. Body Mass Index**

The body mass index (BMI), or Quetelet index, is a measure for human body shape based on an individual’s mass and height. The BMI is given by the following formula:

bmi

where *m* is the mass in kilograms and*h*the height in meters. Write a program which prompts the user to read the mass (in kilograms) and the height (in meters) of a person, and display the BMI for that person. Here is an example of execution of this program (user input is in bold):

Enter the mass in kilograms: **75**  
Enter the height in meters: **1.78**  
  
The BMI is 23.7

The BMI should be displayed with one decimal digit.

**5. Address**

Write a program that prompts the user to read a full name (a string, like ”Bruce Wayne”), a street address (a string, like ”1 Batman Road”), a zip code (an integer, like 1000), a city name (a string, ”Gotham City”) and a country name (a string, like ”USA”). The program then display the full address of the person. Here is an example of execution of this program (user input is in bold):

Name: **Bruce Wayne**  
Address: **1 Batman Road**  
Zip code: **1000**  
City: **Gotham City**  
Country: **USA**  
  
Bruce Wayne  
1 Batman Road  
1000 Gotham City  
USA

The strings to be read may contain the space character, so you must use the getline function to read them from cin. You may need to use also the ignore function (see pages 119 and 123  from the textbook).

**6. Math tutor**

Write a program that can be used as a math tutor for a young student. The program should display two random numbers to be added, then pause while the student works on the problem. When the student is ready to check the answer, he or she can press the enter key and the program will display the correct solution. Here is an example of execution of this program:

  294  
+ 478  
 -----  
  
Press Enter to see the answer . . .  
  
772

The two random numbers must have exactly three digits (i.e. must be in the interval [100, 1000[ ). To generate random numbers, you must use the function rand from the cstdlib library. To stop the program and wait for the user to press the enter key you can use the getline function (and read the empty string). 

**7. Math tutor revisited**

Write a new version of the previous program so that each time you run your program, it displays different (random) numbers to be added. To achieve that you must use and combine the function srand and the function time(search on the internet for documentation on these functions).