Lab work – sqrt and rand functions

1) Write a complete C++ program which carries out the following tasks:
   - Ask the user for two integers, \(a\) and \(b\).
   - If \(a\) is greater than \(b\), exit the program.
   - Print a random number (using the \textit{rand} function) between \(a\) and \(b\), inclusive. The formula is as follows:
     \[
     \text{rand()} \% (b - a + 1) + a
     \]
     Amount of numbers from \(a\) to \(b\).

   Note: Using the same inputs, run it a few times with \texttt{srand()}. Comment out the \texttt{srand} statement, compile the code and run the program again for a few times. Notice the difference.

2) More practice on using \texttt{rand}(): Print the following numbers to the screen:
   a) A random single digit between 0 and 9
   b) 10 random numbers (between 1 and 10) separated with a space on one line
   c) A random number in the range 1000 and 9999 (inclusive)
   d) 5 random numbers between -1 and -9 on one output line
   e) 5 random 3-digit integers (one number per line)
   f) a random number \(r\) with \(7 \leq r \leq 27\)
   (harder questions from MT1)
   g) a random 3 digit even number
   h) a random 3 digit number that is divisible by 3

3) \texttt{prac1.pdf} Write a complete C++ program that does the following.
   a) It repeatedly, asks the user to enter an integer.
   b) If the entered number is negative, the word “Negative” is printed and the program terminates.
   c) Otherwise the square root of the number is calculated and the \textbf{nearest integer to this square root} is printed.

Here is an example of how the program should work:

Enter a positive integer \(n\) (or a neg number to exit): \textbf{100}
Nearest integer to its square root = 10
Enter a positive integer \(n\) (or a neg number to exit): \textbf{97}
Nearest integer to its square root = 10
Enter a positive integer \(n\) (or a neg number to exit): \textbf{101}
Nearest integer to its square root = 10
Enter a positive integer \(n\) (or a neg number to exit): \textbf{-100}
Negative