Problem J1: Squares

Gigi likes to play with squares. She has a collection of equal-sized square tiles. Gigi wants to arrange some or all of her tiles on a table to form a solid square. What is the side length of the largest possible square that Gigi can build?

For example, when Gigi has 9 tiles she can use them all to build a square whose side length is 3. But when she has only 8 tiles, the largest square that she can build has side length 2.

Write a program that asks the userfor the number of tiles and then prints out the maximum side length. You may assume that the user will only type integers that are less than ten thousand. Once your program has read the user's input and printed the largest square, your program stops executing.

There are many different methods that your program might use to find the answer. You may use any method. For example, here is one method. First, check whether there are enough tiles to build a square of side length 1. If there are enough tiles, then move on to check the side lengths 2, 3, 4, etc., until your program finds a length that is too large.

Sample Session 1
Program Output: Number of tiles?
User Input: 9
Program Output: The largest square has side length 3.

Sample Session 2
Program Output: Number of tiles?
User Input: 8
Program Output: The largest square has side length 2.

Sample Session 3
Program Output: Number of tiles?
User Input: 7535
Program Output: The largest square has side length 86.