2. Use your program from Problem 1 to find a Pythagorean triple (x, y, z) such that 1500 ≤ x ≤ 1700 and 1500 ≤ y ≤ 1700. Write down one such triple as the answer to this problem.

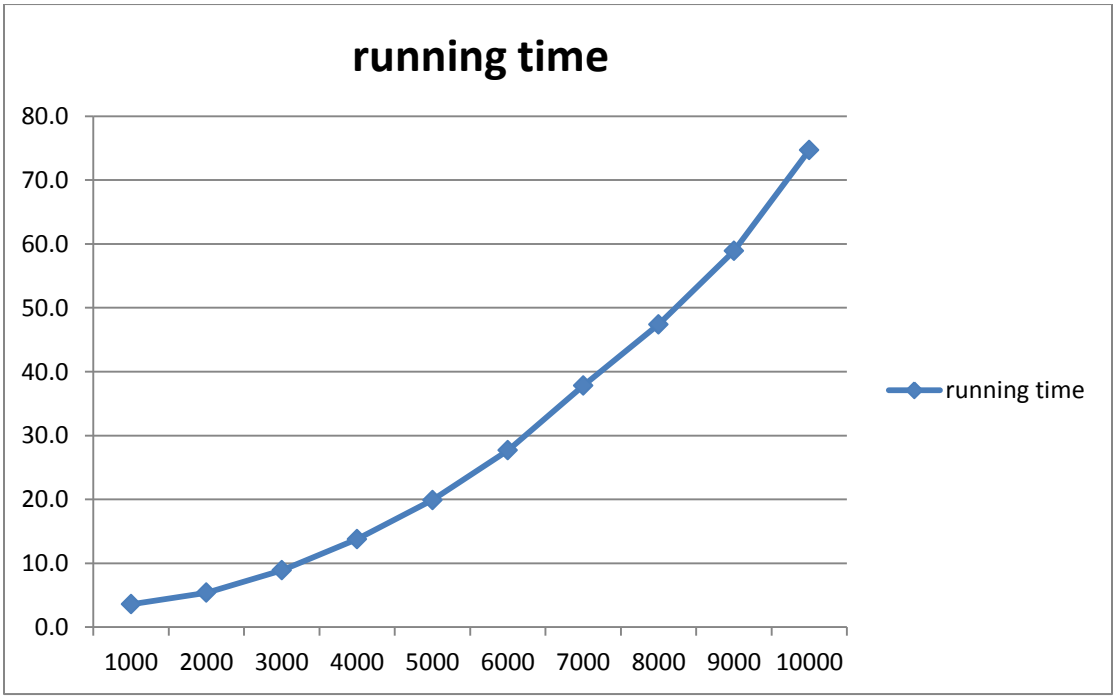
Answer: Pythagorean triple: 1666 1680 2366.

4. Use your program from Problem 3 to find the number of distinct Pythagorean triples (x, y, z) such that x ≤ 10,000 and y ≤ 10,000. Write down this count as the answer to this problem.

Answer: There are 14474 Pythagorean triples.

5. Recall how we timed code fragments using functions from the time module. In this problem, we want use to use a similar approach to acquire a sense of how long it takes to generate Pythagorean triples. For each M = 1000; 2000; : : : ; 10000 compute the running time of the Python program you wrote for Problem 3. Make a plot of the running times, with the x-axis showing M and the y-axis showing the running time of your program, when executed with input M. Based on the shape of your plot, make a guess about how the running time of your program grows as M increases.

Answer: Running time increases with an acceleration rate within the range 1 to 2 while the amount of M increases.



7. Use your program from Problem 6 to find all Pythagorean quadruples (a, b, c, d) such that a, b, and c are all between 10 and 20 (inclusive of 10 and 20). Write down all such quadruples as the answer to this problem.

Answer: There is only one Pythagorean quadruple (12, 15, 16, 25).