Threes

We are looking for sets of positive integers that satisfy the following conditions:

$$x^2 + y^2 = 1 + z^3$$

where $z < x < y$ and no two of x, y or z share a common factor other than 1.

Task

Write a program to:

1. Find the first 70 sets ordered by increasing x, for x, y and z which satisfy the above.
2. Find the first 70 sets ordered by increasing z, for x, y and z which satisfy the above.

The output should be formatted as follows.

- Each line should begin with the set number (i.e., 1 through 70) followed by a single space and then the values of x, y and z in that order also separated from one another by single spaces.
- The two sets of solutions should be separated by a single blank line.
- If there are two solutions for a given value of the "primary key" (i.e., x or z depending on which part of the task we're looking at) then they should be in order of the "secondary key" (resp., z or x).

Relates to Objectives

1.2, 2.2, 2.7, 2.8, 3.1, 3.3, 3.5.

(Individual)