

STOR 215 Homework 1

Show all work.

1. Consider the equation $x^2 + y^2 = z^2$ where x, y, z are positive integers.
 - (a) Exhibit one solution x_0, y_0, z_0 of the equation.
 - (b) Use the “multiply by a positive integer” idea discussed in class to find two other solutions to the equation using the solution you listed in part (a).

2. Consider the equation $x^3 + y^3 = z^3$.
 - (a) By repeating the argument we used for the equation $x^2 + y^2 = z^2$ show that the following statement is true: If $x^3 + y^3 = z^3$ has a solution in the positive integers, then it has infinitely many solutions.
 - (b) Find two (simple) solutions of $x^3 + y^3 = z^3$ if we allow x, y, z to be *any* integers, positive, negative, or zero.