Indeterminate Equation

Pythagorean Triplets

Learn how to solve this *type* of problems, not just this problem.

1. What is Fermat's Last Theorem?
2. Describe the Pythagorean triplet formula, and under which conditions, the generated triplets are primitive.
3. Let integers a, b and c be the lengths of a right triangle's three sides, where $c > b > a$. Show that $\frac{(c-a)(c-b)}{2}$ must be a square number.
   (Ref Ref 2311)
4. Find all right triangles whose sides' lengths are all integers, and areas equal perimeter numerically.
5. Show that if the lengths of all the three sides in a right triangle are whole numbers, then radius of its incircle is always a whole number too.
   (Ref Ref 2333)
6. The sides of a right triangle all have lengths that are whole numbers. The sum of the length of one leg and the hypotenuse is 49. Find the sum of all the possible lengths of the other leg.
   (Ref Ref 2537)
7. A right triangle has perimeter 32 and area 20. What is the length of its hypotenuse?
   (Ref Ref 1602: 2008 AMC10A #18)
8. Solve in positive integers the equation $x^2 - 4xy + 5y^2 = 169$.
   (Ref Ref 156)
9. Show that if the lengths of a right triangle's three sides are all integers, then one of them must be a multiple of 3, one of them must be a multiple of 4, and one of them must be a multiple of 5. Please note: these sides may not be distinct. For example, in a 5-12-13 triangle, 12 is a multiple of both 3 and 4.
10. A grid point is defined as a point whose x and y coordinates are both integers. How many grid points are there on the circle which is centered at (199, 0) with a radius of 199?
    (Ref Ref 2765)