LARSON—MATH 255–HOMEWORK WORKSHEET h08
Problems!

1. Create a Cocalc/Sage Cloud account.

   (a) Start the Chrome browser.

   (b) Go to `http://cocalc.com`

   (c) You should see an existing Project for our class. Click on that.

   (d) Click "New", then "Sage Worksheet", then call it **h08**.

   (e) For each problem number, label it in theSAGE cell where the work is. So for Problem 1, the first line of the cell should be `#Problem 1`.

2. What is the index of the first term in the Fibonacci sequence to contain 1000 digits?

3. Find the smallest sum $x + y + z$ with integers $x > y > z > 0$ such that $x + y$, $x - y$, $x + z$, $x - z$, $y + z$, $y - z$ are all perfect squares.

4. If $p = 120$ is the perimeter of a right triangle with integer length sides, $\{a, b, c\}$, there are exactly three solutions (three triples that are the sides of a right triangle): $\{20, 48, 52\}$, $\{24, 45, 51\}$, and $\{30, 40, 50\}$.

   Write a function `solutions(p)` that finds the number of right triangles with integer length sides, $\{a, b, c\}$, and perimeter p, there are exactly three solutions

5. For which value of $p \leq 1000$, is the number of solutions maximized (for which p has the most triples that work)?

Getting your homework recorded

When you are done, before you leave class...

(a) Click the "Make pdf" (Adobe symbol) icon and make a pdf of this worksheet. (If CoCalc hangs, click the printer icon, then "Open", then print or make a pdf using your browser).

(b) Send me an email with an informative header like "Math 255 - h08 worksheet attached" (so that it will be properly recorded).