Problem of the Week
Number Five
February 22, 2016

Since this will be our last problem before spring break, I have chosen one that's fairly challenging. So how about some jokes that are higher-level than our usual fare?

Did you know that Benoit B. Mandelbrot's middle initial stands for Benoit B. Mandlebrot?

One evening, Rene Descartes went to relax at a local tavern. The bartender approached and said, "Ah, good evening Monsieur Descartes! Shall I serve you the usual drink? Descartes replied, "I think not," and promptly disappeared.

Asked if he believes in one God, a mathematician answered, "Yes, up to isomorphism."

What do you get when you evaluate the contour integral around Western Europe? You get zero, since the Poles are in Eastern Europe.

Why did the mathematician name his dog "Cauchy"? Because he left a residue at every pole.

What's an anagram for "Banach-Tarski"? It's Banach-Tarski Banach-Tarski.

A graduate student was taking one of his orals, but it wasn't going well. Eager to boost the student's morale, the examiner decided to lob him a softball. He said, "Give an example of a compact space." The student replied, "The reals." The examiner frowned, but tried to be helpful. "In what topology?" he asked.

Why is it that the more accuracy you require of an interpolation function, the more expensive it becomes to compute? Because that's the law of Spline Demand!

Do good math jokes exist? Under the axiom of choice, sure. But it's not possible to find an explicit example.

Here's this week's problem:

Find all positive integers x for which

$$(x-6)(x+14)$$

is the square of an integer.

Of course, for your answer to be considered complete it must include an explanation of how you know you have found them all. When you think you have the problem figured out, follow the instructions below.

*Submissions are due to Jason Rosenhouse by 5:00 on **Friday, February 26.** Solutions should be written on the back of an official POTW handout. Place your name, e-mail address, and the section numbers and professors of any math courses you are taking, in the **upper right corner** of the front of the page. One weekly winner will receive a five-dollar gift card from Starbucks. Solutions will be posted at this website, by the Monday after the problem is due:*

http://educ.jmu.edu/∼rosenhjd/POTW/Spring15.html