Problem of the Week
Number Ten
December 4, 2017

My parents fiftieth wedding anniversary occurred on Thanksgiving day, and as part of several days of celebration, the whole family gathered in New York City. Over dinner at a nice restaurant, I asked my twelve-year-old nephew to tell me about the math circle he was part of. He then busted out a cute little problem that will form the finale of our ten-themed edition of POTW:

What is the next number in this sequence?

$$1, \ 4, \ 5, \ 6, \ 7, \ 9, \ 11, \ \ldots$$

Don't see a ten here? Well, maybe it shows up in the solution. Let me also remind you that here at POTW, we have a tradition of selecting final problems exhibiting a touch of humor. Now you're on your own!

There are lots of cute problems of this sort. My nephew also served up this challenge:

Give the next three letters
in this sequence:

$$G, \ T, \ N, \ T, \ L, \ \ldots$$

I replied by challenging him to think of an unusual seven-letter word that had three u's in it.

My father then asked us to determine the next number in this sequence:

$$\underbrace{1, \ 1, \ 1, \ \ldots, \ 1}_{22 \text{ ones}}, \ 3, \ 1, \ 1, \ ?$$

Thanksgiving in my family is just filled with mathy goodness! But enough of this. When you think you have the main problem figured out, follow the instructions below.

*Submissions are due to Jason Rosenhouse by 5:00 on **Friday, December 8.** Solutions, complete with a brief explanation, 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 the POTW website:*

**http://educ.jmu.edu/∼rosenhjd/POTW/
Fall17/homepage.html**

That's it for another semester of POTW. But fear not! We will make a triumphant term next semester.