Keeping the Guests Dry
Math in my Life #6

Last summer my sweetheart and I were very happily married in a lovely wedding at my in-law's residence near Poulsbo. Actually, we had two weddings last summer, but that's another story...

During the planning stages, I was quite set on the idea of an outdoor wedding, and I didn't want to go to a commercial wedding site because I was sure we could do it more cheaply on our own. Actually, the real way to save money on weddings is to elope (as Grandpa pointed out), but we wanted a real ceremony with all of our friends and family in attendance! So we were planning a big party. The problem with planning an outdoor wedding in Seattle, is that there's a distinct possibility of rain! So any outdoor event has to be organised with a back up plan in case the weather doesn't cooperate.

My in-law's house is quite small, which meant that our back-up plan could not involve putting everyone inside. So we needed to rent tents - a small one to cover the chairs during the ceremony, and a large one for the reception. The size of tent we could order was limited by our budget. It turned out that the largest dinner tent we could afford measured 30 feet by 20 feet. The rental company had tables which measured 6 feet by 2 feet. They told me that I should allow 2 extra feet on any side that would have chairs - so that people could get in and out from their dinner seating! With these dimensions, I needed to figure out the number of people we could keep dry during the meal, and therefore the number of guests we could invite!

I started with the tables. Comfortable seating would be 6 people per table seated three on each long side (see sketch 1). So I had to add 2 feet to the width on each side, making the table space 6 feet wide. That meant that for each table I had to allow a square 6 feet by 6 feet.

Since the tent was 20 feet wide I could fit three tables that way (see sketch 2), and then 5 tables lengthwise to make 30 feet. Three times five is 15, so I could fit fifteen tables under the tent. Fifteen tables times six people per table gave me 90 guests. So we could seat 90 guests comfortably under the tent.

Here are the calculations in one long mathematical expression:

$$(\frac{20}{6}) \cdot (\frac{30}{6}) \cdot 6 = (3\frac{1}{3}) \cdot 5 \cdot 6.$$

Since we can't saw a table up into thirds we could fit

$$3 \cdot 5 \cdot 6 = 90$$

guests under the tent.

In the end, we had 135 guests. It's a damn good thing it wasn't raining on our wedding day!