## Montlake Math Challenge

November 6, 2008

## Logic Problems

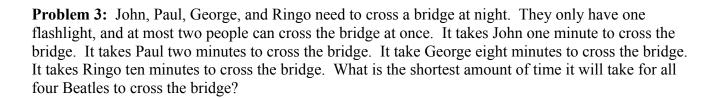
## **Problem 1: Magic Squares**

Fill in the following square using the numbers 1-9 so that the sum of the numbers across each row, down each column, and along each diagonal is exactly 15.

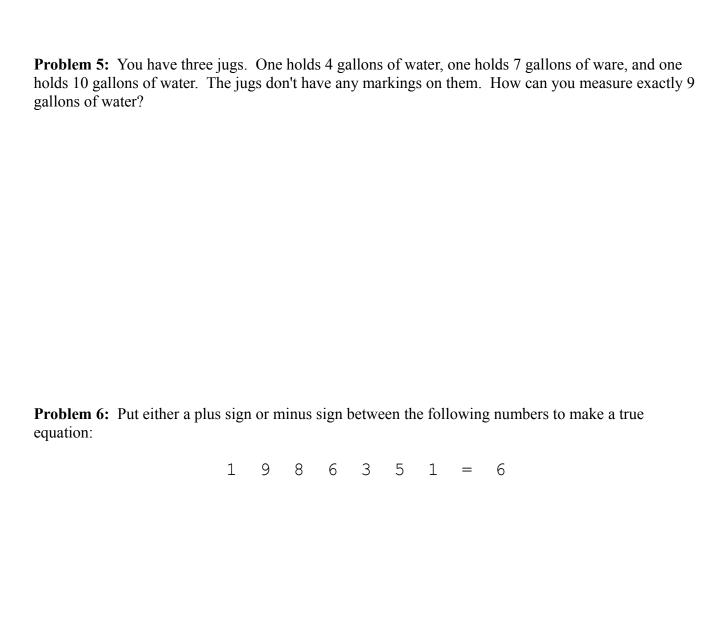
**Problem 2:** As an incentive for doing your math homework, Mr. Schultz offers you the following plan during the month of November:

- On November 1, you get one cent for turning in your math homework,
- On November 2, you get two cents for turning in your math homework,
- On November 3, you get four cents for turning in your math homework,
- On November 4, you get eight cents for turning in your math homework,

and so on. For each day you turn in your math homework, Mr. Schultz will give you twice as much money as you got the day before. On the other hand, Steve and Sam will give you one thousand dollars per day for doing your math homework. Whose offer should you take?



**Problem 4:** Harry and Ron are sitting 20 miles apart on their broomsticks. They start flying towards each other at a speed of ten miles per hour. At the same time that they start flying, Hedwig flies from Harry's broomstick to Ron's broomstick. When Hedwig reaches Ron's broomstick, she immediately turns around and flies back to Harry. Hedwig keeps flying back and forth between Harry and Ron without stopping. If Harry and Ron fly at a rate of 5 miles per hour and Hedwig flies at a rate of 12 miles per hour, how far will Hedwig fly before Harry and Ron meet?



## \*Challenge Problem

Here is another magic square. Fill the squares using the numbers 1-16 so that the sum of the numbers across each row, down each column, and along each diagonal is equal to 34.