Problems Of The Week
Due January 15th

*Make sure you look at the guidelines before you start!

1. Laura decided that she would like to read more during 2010, so she made a resolution to read 30 minutes each day. If Laura reads an average of 1 page every minute and she finishes her 6th book at the end of her reading session on March 31, 2010, what would be the average number of pages per book for these six books?

2. The first date of the millennium was 01/01/00, when the digits are added, it's the smallest possible sum of any date (2). What date during this century, when written in the format mm/dd/yy, will have the greatest possible sum of its digits?

3. How many even four-digit numbers greater than 8000 are there that don't have 0 or repeated digits? Show how you found this answer. (So 9012 is not allowed because 0 is not allowed. 2476 is bad because it is less than 8000. 9882 doesn't work because it had 8 twice.)

4. Each domino covers two adjacent squares on a 9 by 9 chess board. Can you cover the board in dominoes? Why or why not?

5. A billiard ball is struck at a 45 degree angle from a corner of a 4 by 7 foot billiard table. The table has pockets in the corners and in the middle of each long side. If the ball keeps going (maybe forever...) how many times will the ball rebound off an edge of the table before landing in a pocket?
Problems are from MAA American Mathematics Competitions and Laura's head!