1. Mark has a solid cube made from a material that weighs 48 pounds per cubic foot. If Mark's cube has 6-inch edges, how many pounds does it weigh?

2. A leap year has 366 days and occurs every four years. All non-leap years have 365 days. This year (2012) is a leap year which began on a Sunday. What day of the week will begin the next leap year (2016)?

3. In Dictionopolis, every word consists of exactly two letters, and only the letters A through J are used. The Dictionopolis dictionary includes every two-letter word that can be made using only the letters A through J, beginning with the word Aa and ending with Jj. What is the 50th word in the Dictionopolis dictionary?

4. Nikki separates an ordinary 8 by 8 checkerboard into two pieces by cutting along the lines. If the original checkerboard has 1-inch squares, what is the largest possible total perimeter of the two pieces formed by Nikita?

5. Erich and Katie take turns rolling a 6-sided die. Erich rolls first. What is the probability that Erich is the first person to roll a 5? Express your answer as a common fraction.

6. Angela adds every 4-digit perfect square, starting with $32^2 = 1024$, and ending with $99^2 = 9801$. What is the units digit of her result?

7. What is the coefficient of a^3b^2c in the expansion of $(a + b + c)^6$?

8. The lengths of the parallel bases of a trapezoid are 19 cm and 13 cm. One of the legs has length 15 cm. How many integer values are possible for the length of the other leg?

1. 6
2. Friday
3. Ej
4. 132 (inches)
5. 6/11
6. 4
7. 60
8. 11