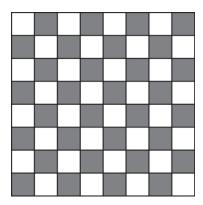
## San Diego Math League Middle School Division Round 2b January 21, 2012

- 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?

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