

## MATH CLUB MEETING 10-30-09

1. Rules of this game: enter by the bottom red path and end on the center gray square. You may retrace your path but may not make a U-turn on a pathway. You must follow the paths in the order red, blue, yellow and then red, blue, yellow again, as needed, changing color on the white squares.



2. Suppose we have a  $5 \times 5$  board. Arrange 5 red queens and 3 blue queens on the so that no queen attacks a queen of the other color.
3. Suppose we have a  $6 \times 6$  board. Arrange 7 red queens and 7 blue queens on the board so that each queen attacks exactly one queen of the other color.
3. Take the names of the first nine elements of the periodic table: hydrogen, helium, lithium, beryllium, boron, carbon, nitrogen, oxygen and fluorine. Select one letter from each of these names in order to spell a familiar nine-letter word. (*Hint:* It's a word used in math.)
4. Take the names of the officially recognized planets in order, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Select one letter from each of these names in order to spell a familiar eight-letter name. (*Hint:* It's a name used in math.)
5. What is the largest number of nonoverlapping triangles that can be produced by  $n$  straight line segments? (This problem is unsolved for  $n = 6, 8, 10, 11, 12, 14, 16$  and  $n > 17$ , although an upper-bound is known, and it is

$$\left\lfloor \frac{n(n-2)}{3} \right\rfloor$$