Here is another problem from one of my Hampden-Sydney professors.

Consider the following square and the rules that go with the square.

1	2	3
4	5	6
7	8	9

Each square is exactly one of the following colors: green, orange, red, or yellow.

Square 3 is yellow. Square 5 is orange. Square 9 is green.
Square 1 is not red. Square 7 is neither orange nor red.

If two squares have a common side, they are not the same color. For example squares 5 and 6 cannot both be green, but squares 1 and 5 could both be orange since they don't share a common side.

1. Which of the following statements **cannot** be true?

   1 is green 1 is orange 4 is green 8 is green 8 is yellow

2. If the colors of the squares are such that as many as possible are red, how many of the squares must be red?
   1 2 3 4 5 6

3. If square 3 is the only yellow square, which one of the following statements must be false?
   1 is green 1 is orange 4 is green 4 is red 8 is red

4. If the colors of the squares are such that as few as possible are green, how many squares must be green?

   0 1 2 3 4 5