

Problem of the Month, February 2007:

Suppose \mathbb{R}^2 has been colored with three colors: red, white and black. Let the distance $d > 0$ be given. Prove that at least one of the following must always happen.

1. There are two points of the same color that are a distance d apart.
2. There is an equilateral triangle of side length $\sqrt{3}d$ and an equilateral triangle of side length $3d$: all of the vertices of both triangles are of the same color.

(Please note that there has been a slight change to the Problem of the Month prize. We can no longer offer the \$10 prize in cash, but instead the prize will be a \$10 gift certificate. Sorry for the inconvenience!)