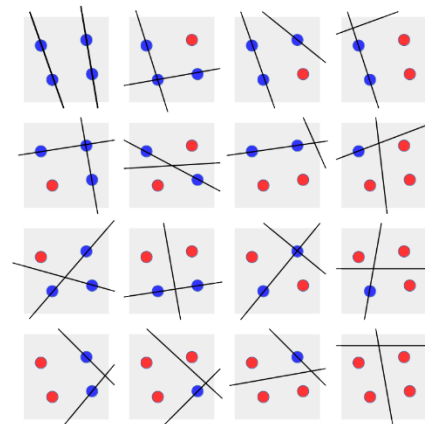


University of Washington Math Hour Olympiad, 2017

Grades 8-10

6. A set of points in the plane is *epic* if, for every way of coloring the points red or blue, it is possible to draw two lines such that each blue point is on a line, but none of the red points are. The figure shows a particular set of 4 points and demonstrates that it is epic. What is the maximum possible size of an epic set?



7. Froggy Chess is a game played on a pond with lily pads. First Judit places a frog on a pad of her choice, then Magnus places a frog on a different pad of his choice. After that, they alternate turns, with Judit moving first. Each player, on his or her turn, selects either of the two frogs and another lily pad where that frog must jump. The jump must reduce the distance between the frogs (all distances between the lily pads are different), but both frogs cannot end up on the same lily pad. Whoever cannot make a move loses. The picture below shows the jumps permitted in a particular situation.

Who wins the game if there are 2017 lily pads?

