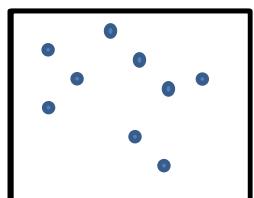


Let  $S$  be a square region (in the plane) of side length 2 inches.



$S$

In our case if we have 9 points in  $S$ , we have at least 3 points, which link them can't cover the square of  $\frac{1}{2}$  square inch. It happens because we can't place all 9 points in the way that distance between them was sufficient to cover  $\frac{1}{2}$  square inch.