Exercise for the lecture
Algorithms for Radio Networks
Winter 2011/12
Sheet 11

EXERCISE 11:

1. A circular area with radius R should be covered with sensor nodes with a circular coverage of radius r. Determine upper and lower Bounds for the required number of sensors.

2. According to the following Figure, consider a quadratic area that consists of 16 squares and the size of each square is 5m x 5m with 16 sensors. We want to place each sensor randomly and uniformly in each square of the area so that they are connected to each other.
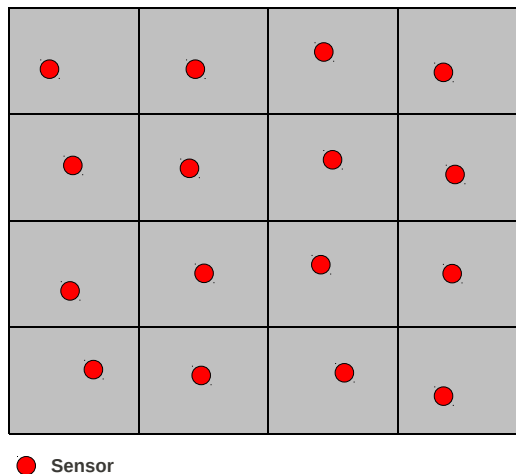
● **Sensor**

- What is the probability that exactly one sensor node is placed in one square?
- Estimate the number of required sensor nodes that should be available to ensure the desired connectivity of all sensor nodes in the area?