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Exercise for the lecture

Algorithms for Radio Networks

Winter 2013/14

Sheet 6

EXERCISE 1:

1. **Navigation**

   You are on a boat which is moving in a direction of $225°$ (with respect to the north). At 10 a.m, you spot a light house in a direction of $300°$. Your boat is continuously moving with 5 knots (5 nautic miles/hour). At 1 p.m you spot the light house in the direction of $310°$. What was the distance to the light house at noon?

2. **MIMO**

   Consider a MIMO system with three coordinated sender antennas and two coordinated receiver antennas

   - Calculate the maximum power gain compared to single sender antenna with same power
   - What is the maximum diversity gain of such system