

Problem Set 9

Randomized Algorithms

Due Friday, November 8

1. Let X_1 and X_2 be zero-mean subgaussians with parameters σ_1 and σ_2 , respectively.
 - (a) Show that if X_1 and X_2 are independent, then X_1X_2 is subgamma. What are the parameters in terms of σ_1 and σ_2 ?
 - (b) Show that in general, without assuming independence, $X_1 + X_2$ is subgaussians with parameter $2\sqrt{\sigma_1^2 + \sigma_2^2}$.