

# Math 21-325 - Probability

Part of Homework Assignment 9  
Due Friday Nov 9

1. Prove, that if  $X_1, X_2, \dots$  and  $Y_1, Y_2, \dots$  are random variables such that  $(X_i, Y_i)$  have the same joint distribution for all  $i$  and are independent for different  $i$ s, then

$$\rho\left(\sum_{i=1}^n X_i, \sum_{i=1}^n Y_i\right) = \rho(X_1, Y_1).$$