1 Homework 8, due April 15, 2020

Calculate the renormalization group transformation for the 1d Ising model

$$H = \alpha + K \sum_i S_i S_{i+1} + h \sum_i S_i. \tag{1}$$

Choose blocks of length $l = 2$,

a) Calculate the transfer matrix for the renormalized α', K' and h' and express it in $T(K, h, \alpha)$. Use this to find the relation between the primed and unprimed couplings.

b) Calculate the fixed points, and linearize the equations about the fixed points to find the scaling factors.