High temperature series for 2D Ising model

1. Calculate the first two terms in the high temperature series for the 2D Ising model

$$H = -J \sum_{\langle ij \rangle} \sigma_i \sigma_j - h \sum_i \sigma_i$$

where the symbol $\langle ij \rangle$ means i and j are nearest neighbors on the square lattice. Your series should be in powers of $u = \tanh(\beta h)$ and $v = \tanh(\beta J)$. Be sure that you obtain a term of order $u^2 v$.

2. Calculate the zero field susceptibility χ. Interpret your result and compare with your answer in 1D.