Fugacity problem

2) Estimate the fugacity coefficient and fugacity of the following binary gas mixture at 345 K. The molar volume of the gas mixture is 100 cc/mol. The gas mixture is adequately represented by the following EOS. Generate mole fraction of gas mixture and a parameter by random number.

$$P = \frac{RT}{v} - \frac{a_{mix}}{\sqrt{v^3 T}}$$

$$a_{mix} = \sum_i y_i a_i$$