

Name: _____

Consider the Dieterici equation of state: $P = \frac{nRT}{V-b} e^{-a/(nRTV)}$

1. Which constant corresponds to the atomic/molecular volume? **a** **b**
2. Which constant corresponds to the intermolecular interactions? **a** **b**
3. Show how you would derive the ideal gas equation from the Dieterici equation of state.

Bonus. How are the Dieterici constants a and b related to the van der Waals constants a_{vdw} and b_{vdw} ? Recall, the van der Waals equation: $P = \frac{nRT}{V-nb_{vdw}} - \frac{a_{vdw} n^2}{V^2}$ (Hint: Use a Taylor expansion of the Dieterici equation of state)

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