

Step 2: In the found expression there are two partial derivatives. These have the Gibbs energy as constant variable. In order to be able to express these partial derivatives into measurable quantities they should be rewritten. If there is an energy term as the fixed variable the partial differential equation can be rewritten using a standard method, in this case the two remaining partial derivatives are rewritten to:

$$\left(\frac{\partial T}{\partial P}\right)_g = - \left(\frac{\partial g}{\partial T}\right)_P \left(\frac{\partial g}{\partial P}\right)_T$$

$$\left(\frac{\partial v}{\partial P}\right)_g = - \left(\frac{\partial g}{\partial v}\right)_P \left(\frac{\partial g}{\partial P}\right)_v$$

Which of the above equations is true?

To rewrite the partial derivative the minus 1 rule is used.