**Kinetic Molecular Theory Practice**

1) One of the postulates of the kinetic molecular theory says that the molecules in a gas experience no intermolecular forces. In your opinion, is this statement reasonable? Explain why you believe it either is or isn’t.

2) The table below is used to give an idea of how close to ideal three gases are in the real world. The constant “a” (second column) is roughly a measure of how much molecules interact with one another in the real world (larger = stronger interactions) and the constant “b” (third column) is roughly a measure of how large a molecule is (larger = bigger molecules). Given this information, which gas might we consider to be closest to ideal? Which is probably the least ideal? Explain both of your answers:[[1]](#footnote-2)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Compound |  | a |  | b |
| He |  | 0.03412 |  | 0.02370 |
| Ne |  | 0.2107 |  | 0.01709 |
| H2 |  | 0.2444 |  | 0.02661 |
| CH4 |  | 2.253 |  | 0.04278 |
| CO2 |  | 3.592 |  | 0.04267 |
| NH3 |  | 4.170 |  | 0.03707 |

3) CO is more polar than N2. Given this information, which gas do you think would behave most like an ideal gas? Explain your answer.

1. Table taken from the Purdue University website, accessed 4/9/2024. <https://chemed.chem.purdue.edu/genchem/topicreview/bp/ch4/deviation5.html> [↑](#footnote-ref-2)