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Physics 2C, Winter 2020

Reading Assignment due Tuesday 1/21: Submit via Gradescope by 11:30am

1. State whether the following statements are true or false (with justification).

   (a) 1 mol of N_2 has more molecules than 1 mol of Ar.

   (b) 1 mol of N_2 has more mass than than 1 mol of Ar.

   (c) The molar mass of N_2 is greater than the molar mass of Ar.

2. The book discusses the coefficient of linear expansion (α) and the coefficient of volume expansion (β), but leaves out the 2D case. Suppose we want to define the *coefficient of area expansion* η such that

$$\frac{\Delta A}{A} = \eta \Delta T$$

   (a) What do you think the relationship is between α and η for a solid? Justify your expression using logic similar to the textbook's.

   (b) If a copper metal plate has an area of 5.000 cm^2, what would be its area after heating it up 100 K? Note the answer does not depend on the shape of the metal plate.

For extra practice (not due): From Chapter 18 of Knight, 4th edition: Conceptual Questions: 1-2, 4. Exercises: 1-14.