**Answer on Question 56765, Physics, Other**

**Question:**

Suppose that at room temperature, a certain aluminum bar is 1.0000m long. The bar gets longer when its temperature is raised. The length $L$ of the bar obeys the following relation: $L = 1.0000 + 2.4 \cdot 10^{-5}T$, where $T$ is the number of degrees Celsius above room temperature. What is the change of the bar’s length if the temperature is raised to 17.2°C above room temperature?

**Solution:**

Let’s find the final length of the bar when the temperature is raised to 17.2°C above room temperature:

$$L_f = 1.0000m + 2.4 \cdot 10^{-5} \frac{1}{°C} \cdot 1.000m \cdot 17.2°C = 1.00041m.$$  

Then, the change of the bar’s length will be:

$$\Delta L = L_f - L_i = 1.00041m - 1.0000m = 0.00041m = 4.1 \cdot 10^{-4}m.$$  

**Answer:**

The change of the bar’s length if the temperature is raised to 17.2°C above room temperature will be $\Delta L = 4.1 \cdot 10^{-4}m$.

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