Answer on Question #72387-Physics-Other

An aluminum cube is 10.0 cm on a side at room temperature (20°C). It is placed in an oven and heated to 300°C. (a) What is the cube's new volume? (b) Using this volume, compute the length of each edge of the cube.

Solution

a)

$$V' = V(1 + \alpha(t' - t))$$

$$V' = 10^3(1 + 69 \cdot 10^{-6}(300 - 20)) = 1019.32 \ cm^3.$$

b) The length of each edge of the cube is

$$a' = \sqrt[3]{1019.32} = 10.064 \ cm.$$

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