NEXT-TIME QUESTION

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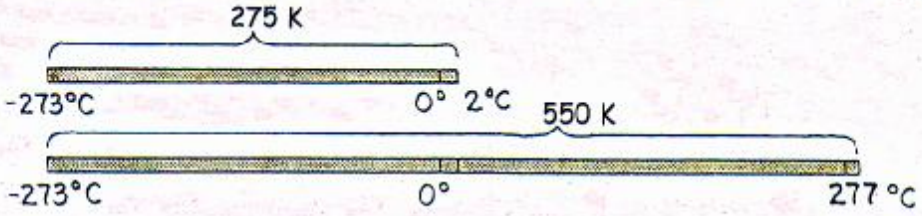
Answer: 277°C

Its temperature will be 277°C, and most certainly not 4°C! At twice the internal energy, the gas will have twice the absolute temperature. Its initial absolute temperature is 273 K + 2 K = 275 K. Twice this is 550 K. Expressed in Celsius, 550°C - 273°C = 277°C.

Consider a stick that is 273 + 2 = 275 units long. This is like a thermometer that extends from absolute zero (-273°C) to 2°C. Can you see that a stick twice as long is 2(275) units long?



Or temperature-wise, 550 K? Subtract the 273 part and you have 277 units – likewise for the twice-as-hot helium.