

Please do not write on the subject, and do not forget to hand it back at the end.

LINEAR FUNCTIONS : TEMPERATURE UNITS

Temperature is most often measured in Celsius degrees ($^{\circ}\text{C}$). Another unit also exists, called Fahrenheit degrees ($^{\circ}\text{F}$), and named after the German physicist Daniel Gabriel Fahrenheit (1686 – 1736).

We can find a temperature T expressed in Fahrenheit degrees knowing the corresponding temperature t expressed in Celsius degrees, using a linear function

$$T = at + b$$

1. Knowing that water boils at 100°C or 212°F and freezes at 0°C or 32°F , justify that the linear relation between degrees Celsius and Fahrenheit is:

$$T = 1,8t + 32$$

2. On June 2nd, the outside temperature was 24°C . Calculate the corresponding temperature in $^{\circ}\text{F}$.
3. The absolute 0 corresponds to $-273,15^{\circ}\text{F}$. Calculate the corresponding temperature in $^{\circ}\text{C}$.
4. In his famous novel "Fahrenheit 451", the American author Ray Bradbury expressed his concern about books being burnt during the MacCarthy era. Indeed, 451°F is the temperature reached in an Auto – da – fé (when books are burnt).

What would have been the title of this novel, if the temperature had been expressed in $^{\circ}\text{C}$?