

Institute of Natural and Life Sciences

Module :physics

Series N° 1 : Mathematical reminders

Exercise: 1

Using the expression for the amount of work exchanged with an ideal gas $\delta W = -PdV$ and that of the work done by a force, find the dimension of pressure.

Exercise : 2

Provide the dimensions of the various physical quantities listed below :
energy, power, potential **U**, and resistance **R**.

Exercise : 3

To measure the thickness of a hollow cylinder, you measure the inner diameter D_1 and the outer diameter D_2 , and you find $D_1 = 19.5 \pm 0.1$ mm and $D_2 = 26.7 \pm 0.1$ mm. Give the measurement result and its precision (relative uncertainty).

Exercise : 4

Calculate the area **A** of a circle with a radius $R = 5.21 \pm 0.10$ cm. What is the precision ($\Delta S/S$ in %) of the obtained result?