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This is a sample file in the text formatter \LaTeX . I require you to use it for the following reasons:

- It produces the best output of text, figures, and equations of any program I've seen.
- It is machine-independent. It runs on **Linux**, Macintosh (see **TeXShop**), and Windows (see **MiKTeX**) machines. You can e-mail ASCII text versions of most relevant files.
- It is the tool of choice for many research scientists and engineers. Many journals accept \LaTeX submissions, and many books are written in \LaTeX .

Some basic instructions are given next. Put your text in here. You can be a little sloppy about spacing. It adjusts the text to look good. You can make the text smaller. You can make the text tiny.

Skip a line for a new paragraph. You can use italics (*e.g. Thermodynamics is everywhere*) or **bold**. Greek letters are a snap: Ψ , ψ , Φ , ϕ . Equations within text are easy— A well known Maxwell thermodynamic relation is $\left. \frac{\partial T}{\partial p} \right|_s = \left. \frac{\partial v}{\partial s} \right|_p$. You can also set aside equations like so:

$$du = Tds - pdv, \quad \text{first law} \quad (1)$$

$$ds \geq \frac{dq}{T}. \quad \text{second law} \quad (2)$$

Eq. (2) is the second law. References¹ are available. If you have an postscript file, say sample.figure.eps, in the same local directory, you can insert the file as a figure. Figure 1, below, plots an isotherm for air modeled as an ideal gas.

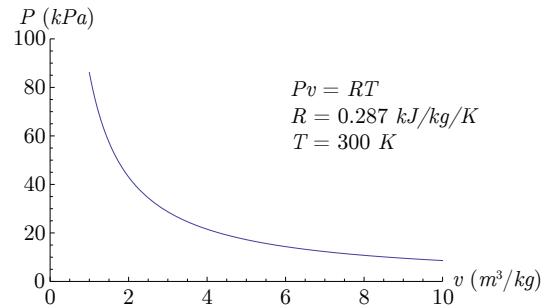


Figure 1: Sample figure plotting $T = 300\text{ K}$ isotherm for air when modeled as an ideal gas.

Running \LaTeX

You can create a \LaTeX file with any text editor (**vi**, **emacs**, **gedit**, etc.). To get a document, you need to run the \LaTeX application on the text file. The text file must have the suffix “.tex” On a **Linux** cluster machine, this is done via the command

```
pdflatex file.tex
```

This generates three files: **file.pdf**, **file.aux**, and **file.log**. The most important is **file.pdf**. This file can be viewed by any application that accepts **.pdf** files, such as Adobe Acrobat reader.

The **.tex** file must have a closing statement as below.

¹Lamport, L., 1986, *\LaTeX : User's Guide & Reference Manual*, Addison-Wesley: Reading, Massachusetts.