

Introduction to Python and VPython

a few comments on

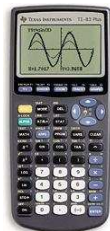
the Use of Computers in Physics

- (Gould Tobochnik Christian - Ch 1)
- **Numerical Analysis** -- numerical solutions
- **Symbolic Manipulation** -- computer-algebra systems (Maple, Mathematica, ...)
- **Visualization** -- plots, animations, alternate representations [color, sound, virtual reality], ...
- **Simulation** – computer experiments... often complicated outcomes from simple rules
- **Data Collection and Analysis** – data-acquisition, real-time data processing
- **Communication** – science education, LaTeX typesetting, archival storage, distribution, and retrieval

- powerful
 - Hardware: memory (RAM, disk storage), processor speed
 - Software: algorithms, programming languages
 - Network: internet
- affordable
- compact



(1979) Radio Shack TRS-80
(1.77MHz Z80, 4kB memory)



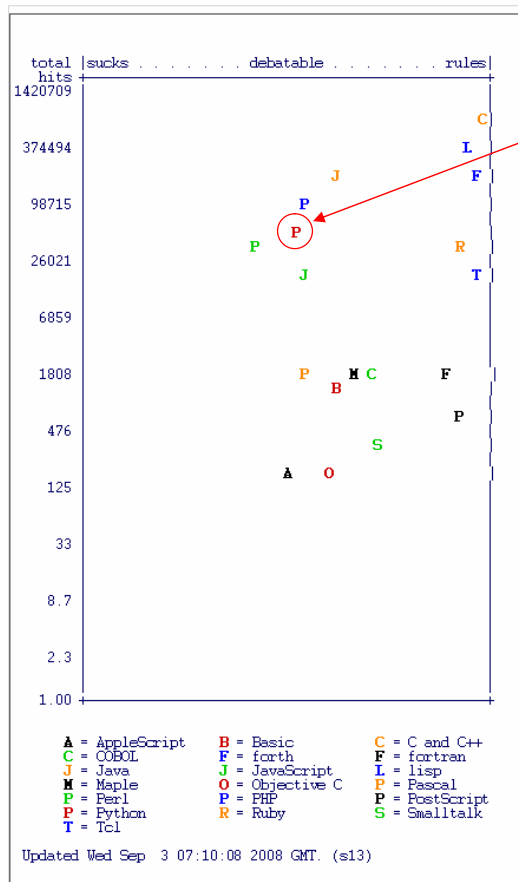
(1999) Texas Instruments TI-83 Plus
(6 MHz Z80, 512kB memory)



(2008) Dell XPS M1330
(2.6 GHz Core2Duo, 4GB memory)

Programming Languages:
The Internet's Current Opinion

(humorous)



Python

http://www.mrob.com/pub/lang_srom.html

The numbers come from [AltaVista](#) queries. For example, a search for "+JavaScript sucks" will reveal that there are 7320 web pages containing the text 'JavaScript sucks'. That number, along with the results of queries for 'JavaScript rocks' and 'JavaScript rules', is used to plot the position of the symbol 'J' on the chart. (As you can see, this paragraph rates JavaScript ambiguously – and that reflects rather accurately how I feel about JavaScript :-). The chart is updated daily.

Languages that appear *higher* on the chart (like C and C++) appear on a greater total number of web pages. Languages that appear closer to the *right* side of the chart (like C and C++) have a greater 'rules/sucks' ratio – that is, they appear more often with 'rules' than with 'sucks'. However, you should keep in mind that languages near the bottom of the chart are not mentioned on many web pages, so their horizontal position isn't as accurate an indicator of their true karma.

Python

- Examples [329-day01.py]

VPython

- http://vpython.org/VPython_Intro.pdf