

12-1-1987

Generating Problem Sets with Word Processing Software

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Original Citation

Walker, Jearl D. "Generating Problem Sets with Word Processing Software." *American Journal of Physics* 55 (1987): 1141-1142.

Repository Citation

Walker, Jearl D., "Generating Problem Sets with Word Processing Software" (1987). *Physics Faculty Publications*. 133.
https://engagedscholarship.csuohio.edu/sciphysics_facpub/133

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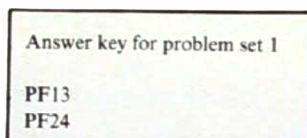


Fig. 3. Answer key template.

data list, I also have the template for the problem set on the screen so that I can determine the sequencing of data. If I later decide to introduce a new problem within a problem set, I do not need to renumber all of the put-fields. Instead I add the appropriate data at the end of a data list and then embed within the new problem the put-fields with numbers that instruct the computer to look at the end of the list for the data.

Instead of manually typing the data list, I could arrange for it to be generated by a program working with a random seed as has been previously described. This procedure would eliminate the need for typing out multiple versions

of the data list. By running the program ten times, I would have ten versions.

I have employed multiple-choice problem sets generated and graded by a computer for 12 years. In each of three academic quarters of the year-long course of introductory physics the students must answer about 400 problems. I begin the year with about 200 students. Since I invest time only once in writing the problems, the ratio of the students' work to my work is quite high. Professors teaching the evening, summer, and "trailer" offerings of the course also use the problem sets because the sets demand a great deal of work by the students and little work by the professors.

¹J. Walker, V. F. Walters, and K. J. Casper, *Am. J. Phys.* **45**, 518 (1977).

²G. T. Wood and K. J. Casper, *Am. J. Phys.* **47**, 388 (1979).

³G. K. Miner and J. E. Lang, *Am. J. Phys.* **52**, 316 (1984).

⁴XyQuest, Inc., P.O. Box 372, Bedford, MA 01730. Xywrite III is a powerful word processing software that includes mail merge, custom-designed commands, split-screen editing, multiple-screen files, and batch printing. It can also search through an entire disk for a given symbol or phrase. Since it avoids menus, it is extremely fast in execution.