

Textbooks Are Not Real

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While reading a book on Matrices and Linear Algebra, I stumbled across an exercise with answers in the back containing errors. The problem was like this: "Add pairs of equations by Matrices A, b, and x. Translate answers back into equations." I will add the formatting and solution below.

$$\begin{cases} 4x_1 + 7x_2 = 2 \\ x_1 + 2x_2 - x_3 = 3 \end{cases} \quad \begin{cases} 7x_2 + 8x_3 = 0 \\ x_1 - x_2 = 17 \end{cases}$$

Note: In a real-life scenario, the x matrix should contain *addition* data. This *addition* data is proof of addition and processing. Without this data, all post-cursoring data is false.

$$A_a = \begin{bmatrix} 4 & 7 & 0 \\ 1 & 2 & -1 \end{bmatrix} \quad b_a = \begin{bmatrix} 2 \\ 3 \end{bmatrix} \quad x_a = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} \quad A_b = \begin{bmatrix} 0 & 7 & 8 \\ 1 & -1 & 0 \end{bmatrix} \quad b_b = \begin{bmatrix} 0 \\ 17 \end{bmatrix} \quad x_b = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

Thus, a post-academic reliance on textbook officiated processes, answers, and equations does not result in accurate information.

$$A_{a+b} = \begin{bmatrix} 4 & 14 & 8 \\ 2 & 1 & -1 \end{bmatrix} \quad b_{a+b} = \begin{bmatrix} 2 \\ 20 \end{bmatrix} \quad x_{a+b} = \begin{bmatrix} 2x_1 \\ 2x_2 \\ 2x_3 \end{bmatrix}$$

The book simply supplied the contents of matrix x_{a+b} as this:

$$x_{a+b} = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

Thus the realistic solution is as shown below:

$$\begin{cases} 8x_1 + 28x_2 + 16x_3 = 2 \\ 4x_1 + 2x_2 - 2x_3 = 20 \end{cases}$$

Thus, as noted, the false solution was as shown below:

$$\begin{cases} 4x_1 + 14x_2 + 8x_3 = 2 \\ 2x_1 + x_2 - x_3 = 20 \end{cases}$$

While it is understandable why this was given as the answer, it could have been assumed many generations ago without knowledge of digital applications such as these today, it is unfortunately false. This being said, it clearly can be seen as malpractice to utilize textbooks as "cheat sheets" for real-world working problems.

If educators and writers utilize their imaginations in order to write educational content, then as readers, we cannot assume it to be directly applicable to real-life scenarios. Examples are not designed as solutions.