Algebra A – Learning Log 4

The study goal is to understand how culture influences students' mathematical conceptions and learning skills.

In this study, you will be asked to answer questions. Some of them will be mathematical questions, regarding the material of the course. In other questions you will be asked to reflect on the previous answers that you gave and about your learning process in the course.

Taking part in this study is completely voluntary. There are no right or wrong answers. The records of this study will be kept private, and will not affect your course grade. Answering the mathematical questions incorrectly will not affect your course grade.

If you decide not to take part or to skip some of the questions, it will not affect your course grade. If you decide to take part, you are free to withdraw at any time.

If you decide to participate you will benefit a **bonus of 2 points** added to your final grade (see details on the course website).

If you have any questions, please don't hesitate to contact me, at:
lital.shemen@gtiit.edu.cn

Thank you for your participation.

Answer the following problem:

Let A be a 4×3 matrix. Denote by C_i the i-th column of A, and let $b = C_1 - 2C_3$.

(a) Prove that the system $Ax = b$ has a solution.

(b) Assume that $\operatorname{rank} A = 2$, and that $x_0 = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$ is a solution to $Ax = b$.

Prove that the system has infinitely many solutions, find the degree of freedom and write the general solution.

Answer the following questions:

1. Rate the difficulty of the given problem.
   (1 - very easy, 9 - very hard)

        1   2   3   4   5   6   7   8   9

2. How confident are you that you answered correctly?
   (1 - not confident at all, 9 - very confident)

        1   2   3   4   5   6   7   8   9

   If you think you were right, what helped you answer correctly?
   If you think you were wrong, what could have helped you answer correctly?

3. Do you agree with the following statements?
   (1 - don't agree at all, 9 - strongly agree)

   (a) I understand the problem's instructions and what it means to write a formal solution.

        1   2   3   4   5   6   7   8   9

   (b) I intuitively understand what is the solution to the problem.

        1   2   3   4   5   6   7   8   9

(c) My teachers expect me to strictly follow the solution path demostrated in class.

    1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**

(d) My teachers encourage me to develop independent thinking.

    1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**

4. Give an example for a tip you have learned in the lectures or tutorials in order to succeed in the mathematics.