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**Linear Algrebra HW Application:**

**User’s Manual**

**For First-Time Users**

Wake up… the matrix has you! It’s time to solve this matrix. To set yourself free, direct your web browser to the following page:

[Enter the Matrix](mcs.drury.edu/LinAlgHW)

The Axiomz development team would like to welcome you to the Linear Algebra Homework system. To sign up, click the “Create Account” dropdown in the top left corner of the home page. After entering your valid credentials (as well as a confirmation code provided by the developers), click the “Create” button. If you wish to clear any data you previously had in your text fields, you can click the “Clear” button. After your confirmation of a created account, you can enter your username and password and click the “Sign In” button to log into the matrix.

**What To Do When Logged In**

When you have logged in to the application, click on any uncompleted assignment link in the assignment selection table. The link will take you to a corresponding Question Page, for which the following instructions will allow you to complete a problem which is generated for you in the middle of this Question Page.

If you are an instructor, refer to page 5 for detailed notes.

**How To Create A Matrix**

1. Go to the dropdown link with the label “Create Matrix” in the Tools pane on the left of your homework page with the system of equations you need to solve
2. Click on the link. A window will appear with two text boxes, with shaded letters inside (“n” and “m”, or n X m for n rows and m columns).
3. Enter the number of rows and columns you want for your matrix in the corresponding text boxes.
4. Click the “Create” button below the text boxes. Your newly created matrix will appear below an arrow pointing to the right.
5. Repeat steps 1-4 if you wish to create another matrix. You can create as many matrices as you need for your work.
6. If you wish to remove any number of matrices or operations in your work before creating your answers, you may click “Remove Last Matrix.” After confirming your wish to remove a matrix to the system the last matrix before your answer will be removed. This allows you to remove any number of answers instead of completely deleting your work if you feel you have a lot of progress that you do not want to destroy.

**Reset Question**

If you want to reset your work of matrices to try a different approach to solving the matrix, click the “Reset Question” link in the tools pane on the left. A confirmation box will appear asking if you wish to reset the question. Hit “OK” and the matrices that you created to solve the problem will be cleared from below the pane with the problem that you must solve.

**How To Create Your Answers**

1. Go to the dropdown link with the label “Answer” in the Tools pane on the left of your homework page with the system of equations you need to solve
2. Click on the link. A window will appear with a single text box, with shaded letters inside (“# of solutions”).
3. Enter the number of solutions you wish to create in response to the system of equations presented in the middle of the page.
4. If you wish to specify a matrix as inconsistent, you can mark the checkbox next to “Inconsistent” instead of generating solutions you can type in.
5. Click the “Create” button below the text box. The solutions for the problem will be appear under the heading “Answer:” with (a) solution variable(s) (X1, X2) below with the text box(s) on the right of the equals sign. Enter your solutions for each corresponding solution variable in each text box. NOTE: If you have marked the answer as inconsistent before hitting the “Create” button, you will simply have a sentence stating: “Answer: The matrix is inconsistent.” In that case, disregard step 6 and proceed to step 7.
6. You can set any of your solutions as free variables. To do so, click the “Set Free Variable” link to the right of a corresponding solution text box. The text box will be shaded and have an “f” inside, and you will not be capable of editing it. Also, the other solution text boxes will become equations for which you must fill in the corresponding coefficients in order to demonstrate how they depend on your free variable. You can make as many free variables as you like after your first, setting the next box to “f”, etc. Please be aware of how the leading equations will depend upon any free variables that you set.
7. You can click “Remove Answers” to remove your solutions if you feel that you need to complete a little more work (complete more operations) before submitting your answer. This often can be a wise choice instead of immediately proceeding to step 8- see the below step for details.
8. Be sure you have filled out every text field in your work and answers! Any solution or piece of work that is “blank” in these mathematical operations must be filled out with a 0. When you are finished, hit the “Submit Answer” button to the bottom right. The page will check your answers. If your solutions are all correct, the page will notify you with a congratulatory message. If any solution is incorrect, the page will prompt you to recheck your answer. If you created one too few or many solutions, the page will prompt you to check that you submitted the correct amount of solutions. NOTE: When you submit your answers and work, you will not be capable of reworking the question. Please give your best effort and complete each problem CAREFULLY!

**What To Do When Logged In As An Instructor**

If you are logged in as an instructor, the home layout will be very similar to the student layout screen. However, instead of one table of assignments, there are two tables: One showing the assignments you have assigned to the students, and one showing the grades of completed assignments by your students. To see a student’s completed assignments and their grades, use the drop-down tool above the table on the right and select a student that is enrolled in your class. If the student has any assignments, they will appear in the table below the selection tool just used. The amount of points the student earned in an assignment will appear on the right of each assignment.

You can create a new assignment for your students by clicking on the “Create New Assignment” link towards the top of your window.

**Creating A New Assignment**

1. When you have reached the assignment creation page, you will have three areas in the middle of your page. Two of these boxes will be on the left and a table will be on the right. Start by entering the name of your assignment click on the text field next to “Due Date” and a calendar will appear. Pick a date from the calendar on which you wish your assignment is due.
2. Next, you will want to assign any numbers of questions in your homework you wish to assign to your students. Use the drop-down tool to select any type of question you wish to add to the table. Valid text fields will appear in which you can enter your parameters for a question. NOTE: As of this current version, only Systems of Equations questions are available to assign.
3. All questions will have a minimum and maximum range of coefficients for a problem you wish to assign. Any problem you wish to assign besides a System of Equations problem will ask for a matrix size. The default System of Equations question allows you to specify the number of rows, columns and free variables. You can also mark the checkbox next to “Inconsistent” if you wish to make the System of Equations problem an inconsistent one to solve.
4. After selecting the type of question you wish to assign and filling the appropriate fields, click “Add Question” and the table on the right will populate with your newly added question. You can repeat steps 2-4 any number of times you wish to assign any number of specific problems for your students. When you are finished, click “Assign Homework” and you should be notified of the success of your newly added assignment, and you will be redirected to your home page where you can see your new assignment in the table on the left and see the current status of the assignment for each of your students in the table on the right.

NOTE: If you have not followed each of the above steps properly, tooltip errors will appear notifying you of your mistake. If an error persists even after following the above steps properly, see the information below for contacting the site’s support team.

**Contact Technical Support**

If you have any issues with this homework site, contact:

1. Brendan Birdsong, primary tech support and technical team leader. Phone: 417-294-4394 Email: [bbirdsong@drury.edu](mailto:bbirdsong@drury.edu)
2. Kieran Ojakangas, team manager and alternative tech support. Phone: 417-894-5475 Email: [kojakangas@drury.edu](mailto:kojakangas@drury.edu)
3. Tyler Jenkins, client manager and alternative tech support. Phone: 417-379-1111 Email: [tjenkins01@drury.edu](mailto:tjenkins01@drury.edu)

The above contacts are the members of the Axiomz developer team. You can find them on the Drury University campus during day school hours. Contact a member for availability.