

Notes for Exam #1

General comments:

Remember the decimal rule: no decimals in the question means no decimals allowed in your answer.

You will not receive credit for steps you skip or do in your head. Use the examples from class as a guide for how much work I expect.

You cannot combine row operations. You can use row 1 to clear rows 2 and 3, but you cannot add row 1 to row 2, and then add row 2 to row 3 in the same step. It's not the same row 2 throughout the step.

If you don't tell me what row operation you are doing in a step, *you will not receive any points*. I don't have time to guess what you did from your answer.

When drawing feasible sets, *don't forget to label the lines and points of intersection*.

Section 1.1: *Coordinate Systems and Graphs*

1. Determine if a point lies on a graph.
2. Put a linear equation in standard form.
3. Graphing linear equations.
4. Word problems involving linear equations.

Section 1.2: *Linear Inequalities*

1. Put a linear inequality in standard form.
2. Graphing a linear inequality.
3. Graphing the feasible set for a system of inequalities. You have to test a point, and tell me which point you are using.

Section 1.3: *The Intersection Point of a Pair of Lines*

1. Find the point of intersection of a pair of lines.
2. Find the coordinates for the vertices of a feasible set.

3. Graphing a feasible set for a system of inequalities, and finding the coordinates of the vertices. *You may not find the coordinates by looking at the graph.*
4. For two or more lines, make sure to label the lines with their equations.
5. Word problems involving the intersection of two lines.

Section 1.4: *The Slope of a Straight Line*

1. Finding the slope of a line in standard form, or the line between two given points.
2. Using the steepness property to draw the graph of a line.
3. Finding lines parallel or perpendicular to a given line, through a given point.
4. Finding the equation of a line, notice we have two forms.
5. Word problems involving the equation of a line.

Section 2.1: *Solving Systems on Linear Equations I*

1. We have three elementary row operations.
2. Remember to convert the linear system into a matrix.
3. Be able to abbreviate row operations like $[2]+3[1]$ or how they do it in the book. **You may not make up your own notation.**
4. Solving linear systems using the Gaussian elimination method. **Hint:** work column by column. How do you know when to stop?

Section 2.2: *Solving Systems on Linear Equations II*

1. Be able to pivot a matrix about a given entry, remember this is different from solving a system of equations (no vertical line).
2. Use the steps of the Gaussian elimination method.
3. What do you do when a matrix cannot be completely diagonalized?

Section 2.3: *Arithmetic Operations on Matrices*

1. When can you add, subtract, or multiply two matrices? What is the rule?
2. What does the identity matrix do?
3. Writing a linear system as a matrix equation.
4. Word problems for matrices.

Section 2.4: *The Inverse of a Matrix*

1. The formula for the inverse of a 2×2 matrix **does not** work for larger matrices.
2. What happens if $D = 0$?
3. Be able to use a matrix inverse to solve a system of equations.
4. Word problems with inverses.

Section 2.5: *The Gauss-Jordan Method for Calculating Inverses*

1. Follow the three steps in the book. What do you start with on the left and right, and how do you know you are done?
2. Suppose that you get a row of zeros in the left-hand matrix. What does that mean?
3. How can you check to see if your answer is right?