

## 1.1 Handwrite

**Welcoming Environment:** Actively listen to others and encourage everyone to participate! Keep an open mind as you engage in our class activities, explore consensus and employ collective thinking across barriers. Maintain a professional tone, show respect and courtesy, and make your contributions matter.

Discuss and keep track of any questions your group has. Ask me questions during group work time as well as when I bring us back together. Try to help each other solidify and review the language of linear algebra, algebra, visualizations and intuition from this section, including those related to:

- algebra of linear equations: coefficients and variables
- geometry of linear equations in 2D and 3D: lines and planes
- solution set: inconsistent and consistent, including unique solutions
- matrix of a linear system: coefficient matrix, augmented matrix, triangular form
- row equivalent systems
- algorithm for solving a linear system using elementary row operations of replacement, interchange, and scaling

Take out your notes from the activities due today as well as the fill-in guide. Use them and each other to respond to the following by handwriting in the language of our class. Use only what we have covered so far in our reading, video and quiz.

1. **Building Community:** What are the preferred first names of those sitting near you? If you weren't able to be there, give reference to anyone you had help from or write N/A otherwise.
2. True/False: A consistent system of linear equations has one or more solutions. Respond to a), b) and c):
  - a) Handwrite the statement.
  - b) Identify the statement as true or false.
  - c) If this statement is false, provide a specific counterexample or reason why. If it is true, provide information in support of the statement in some way—you can quote a phrase from the reading guide, a glossary entry, or a phrase and page number from our book.

3. Determine the value(s) of  $h$  so that the matrix  $\begin{bmatrix} 1 & 4 & -2 \\ 3 & h & -6 \end{bmatrix}$  is the augmented matrix of a consistent linear system and show by-hand work and reasoning.

There are diverse ways you might approach this question but note that one possibility is to apply replacement to use the 1 to eliminate the 3 below it. If you use this method then show the replacement row operation  $r'_2 = \dots$  and show your reduction of the entire second row. Then analyze the reduced matrix and reason whether it ever shows an inconsistency or not. Show by-hand work and reasoning.

Next, as time allows before I bring us back together, work on the additional activities including any pollev activities and respond in your notes rather than here.

**Help each other and PDF responses to ASULearn:** If you are finished with the handwrite and additional activities before I bring us back together, first ensure that your entire group is finished too, and if not, help each other. Then submit your handwrite, continue reviewing and solidifying or discuss upcoming class work.

Collate your handwritten responses, preferably on this handout, into one full size multipage PDF for submission in the ASULearn assignment. I recommend you turn it in sometime today, but you have until the morning before the next class. Handwrites have strict deadlines that are listed on the course calendar as well as in ASULearn.