

**Office Hour Help:** M & W 2:30–4:00, Tu 2:00–3:30, & F 1:30–2:30 or by appointment. Website: <http://math.hws.edu/~mitchell/Math204S16/index.php>.

### ☞ Reading, Practice, and Review

1. Read: Read the syllabus carefully, especially the sections on assessment and test dates. Read Section 1.1 to begin your study of linear equations. Look ahead at Section 1.2.
2. Practice (not collected). Check your understanding of the reading by trying Practice Problems 1–4 on page 9. The answers are on page 11.
3. Bookmark the course website listed above.

### Hand In Next Class

0. Complete the Demo Set in WeBWork. There's a link at our course website.
1. Which of the following equations is linear in  $x_1$ ,  $x_2$ , and  $x_3$ ? For each equation that is *not linear*, give a brief explanation of why it fails to be linear.

$$(a) 2x_1 - x_2 + \sqrt{5}x_3 = 1 \quad (b) 2x_1 - x_2 + 5\sqrt{x_3} = 1$$

$$(c) \frac{x_1}{8} + 7x_2 = \pi x_3 + 1 \quad (d) \frac{1}{x_1} - 6x_2 + ex_3 = 0$$

$$(e) x_1x_2 + x_3 = 6 \quad (f) 6x_2^2 + 9x_3 = 7$$

2. Section 1.1, #11. Solve the system of equations using elimination (not substitution). Show the entire system of equations at each step; do not use matrix notation. (Similar to Example 1 on page 5, but leave out the matrices and just show the new system for each step, describing what you did.)
3. Section 1.1, #14. This time use matrix notation only. Label each step. Note that each step should consist of a SINGLE elementary row operation.
4. **Hand In a Single Copy With One or Two Partners.** Using the Maple software package: Maple will be extremely helpful when working with more complicated, interesting, and 'real-life' problems. Read the MaplePrimer1 handout. You may wish to go to the course website (see top of page) and watch the YouTube videos in the Maple Resource section. At a campus computer, open Maple (under the Start menu on a Windows machine or in the Applications folder on a Mac) and try out the commands from the video and handout. If you work with a partner, one can play the video and the other can try out the Maple commands. **See me for help if needed.**

- (a) In your own Maple file, create the matrix  $A$  that is the augmented matrix in Example 3 on page 8. Make sure to start with the the command `with(LinearAlgebra):`. Try to reduce the matrix using the `RowOperation` command as outlined in the handout. You may have trouble with this, but give it a shot. Put your names, a title, and explanatory text between the steps using the Text button at the top of the Maple window. Switch back to Math when entering your Maple commands.
- (b) Row reduce the matrix using both the `ReducedRowEchelonForm` and `GaussianElimination` commands. Describe the difference between the two answers.
- (c) Save your file (make sure you all have a copy) and print it out. One copy per group.
- (d) **Extra Credit.** Use Maple to carry out the row reduction you did when solving Section 1.1, problem #14 above.

MaplePrimer1 is available on the N: drive on the Colleges' network as a Maple file. Log onto pcommon and look for the folder Math 204 - Mitchell. In the folder you will find MaplePrimer1.mw. Double click on it and Maple should start up.