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.

Five-minute quiz on Wednesday

I will ask you to define a few of the following terms: **pivot, pivot column, echelon form, reduced row echelon form, basic variables, free variables, linear combination, Span** $\{\mathbf{v}_1, \ldots, v_p\}$.

☕ *Reading, Practice, and Review*

1. Review Section 1.4 and read Section 1.5.

2. (*a*) Practice (not to be handed in, check answers in back of text): Section 1.4: #1, 5, 9, 11, 15, 21, 23, 25.

(*b*) Still in Section 1.4: #29 (Hint: First write the matrix in echelon form and then perform row operations on it to take it out of echelon form!), 31, 33. All of these would be good test questions.

3. Read Section 1.5. Reading Check (not to be handed in, check answers in back of text): Section 1.5: #1, 5.

Assignment 5 (First Version)

Due Next Monday in Class. Check online for updates!

1. Section 1.3, Exercise 14.

2. Section 1.3, Exercise 21.

3. Section 1.3, Exercise 26.

4. Section **1.4**, Exercise 12.

5. Section 1.4, Exercise 14. Show your work.

6. Section 1.4, Exercise 16. Ignore the instructions; instead, describe the set of all **b** for which $A\mathbf{x} = \mathbf{b}$ has a solution. (Your description should be in the form of an equation involving $\mathbf{b}_1$, $\mathbf{b}_2$, and $\mathbf{b}_3$). Also, give a specific example of a **b** for which $A\mathbf{x} = \mathbf{b}$ does not have a solution, along with a few words of explanation.

Classwork

EXAMPLE: Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$ and $\mathbf{b} = \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix}$. Is the equation $A\mathbf{x} = \mathbf{b}$ consistent for all possible **b**?

Solution: A has only ______ columns and therefore has at most ______ pivots.

Since A does not have a pivot in every _________, $A\mathbf{x} = \mathbf{b}$

is __________ _______________________ for all possible **b**,

according to Theorem 4.

EXAMPLE: Do the columns of $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 0 & 3 & 9 \end{bmatrix}$ span $\mathbb{R}^3$?