- Do more warm-ups on the earlier recitation handouts. Some of the warm-ups are not on the master section files just the recitation handouts for this semester.
- Recitation 9 and 10: Both of these days were much too hard for the students.
- Recitation 11: Do a warm-up for a simple partial fraction decomposition.
- Recitation 12: Problem 1: Can't have two solutions here.
- Recitation 13: Problem 2 wording is weird. Also we can make problem 3 better by actually including more than just 1. Also perhaps we should include a graph of a direction field that depends on the horizontal variable. Problem 4: Include an example with a general solution like $y = 4 \pm \sqrt{x^3 + C}$.
- Recitation 14: Problem 3b: Can not combine adjacent terms like this. e.g. $+1 - 1 + 1 - 1 + 1 - 1 + \dots$
- Recitation 15: Warm-up. Include a limit of a sequence like $(1+b/n)^n$. Perhaps there is a better sequence to use in problem 2.
- Recitation 16: In the future, it would be best to do question 3 (directly applying tests) rather than question 1 and 2.
- Recitation 18: First, the warm-up is too difficult. Perhaps do an easy limit comparison test question on there. On Prob 2, put a root of a rational function here for limit comparison test. For 4b, perhaps try an easier summand.
- Recitation 19: For section 10.1, make more questions finding $p_k(x)$ and dealing with the remainder. Perhaps a question showing the graphs of $f(x)$, $p_1(x)$, $p_2(x)$ and so on.
- Recitation 20: Students needed a refresher for series center and radius of convergence. Also I think 1c is a bad problem. It is not a power series, it does not need to have an interval of convergence. Consider $\sum_k 2^k x^k - (x-1)^k$. Via the method here, you would conclude that the interval of convergence is (0,1/2). Plug in $x = -1$. Maybe do a problem such as $\sum_k a_k(x-2)^k$ has an interval of convergence [-2,6). Find all x-values where the

series $\sum_k a_k(3x^2-2)^k$ converges. Or even something trickier like having the initial interval of convergence [1,3). In the solution to Problem 3, suggest that there are muliple other power series representations that have other centers and perhaps give one. In problem 2, in (a) switch 3^k with 4^k; in (b), instead of x^k, make it $x^{2k}/3^k$.

- Recitation 21: Warm-up: (b) is too hard. Perhaps ask what $\binom{-3}{0}, \binom{-3}{1}, \ldots, \binom{-3}{4}$ are. Also, add find the power series for $\frac{1}{(1+x)^4}$ in the warm-up. On problem 1, change (b) to $\ln(1-2x^2)$. On 2, add a (b) $\sin(3x^2)$. On 3, add (c) $\sin(\pi)$ and (d) e^e.
- Recitation 22: Warm-up: Add T/F To approximate $\pi/6$, one could substitute $x = 1/\sqrt{3}$ into the Maclaurin series for $\tan^{-1}(x)$. Make problem 3 have an "a" and a "b". (a) $\sum_{k=0}^{\infty} kx^k$. Make problem 4 easier such as $y' - xy = 1$ $y(0) = 0$.
- Recitation 23: Warm-up: I suggest switching x and y. That way, they realize that when $x(t)$ is increasing you move to the right and when $x(t)$ is decreasing you move to the left. Problem 1: Restrict to $t \geq 1$. Make problem 6 be the point $(-\sqrt{3}, 1)$. Students have issues with finding angles in the 2nd and 3rd quadrants.
- Recitation 24: Problem 1: It is too difficult to find the θ values where the tangent lines are vertical. Problem 2: I suggest starting with an (a) Inside the curve $r = 3-2\cos\theta$ and outside the curve $r = 2$ for each group. Then break up the other two among the groups.
- Recitation 25: Perhaps have better vectors in problem 3. Don't necessarily need to be unit vectors. Maybe a vector addition/subtraction question that only gives them the graphs of the vectors.
- Recitation 26: Problem 2: Use the vector $\langle\sqrt{3}, 1\rangle$ rather than $\langle 3, 4\rangle$. Problem 3b: On solution, the picture is wrong. The scalar projection is negative, so $\text{proj}_{\vec{v}}(\vec{u})$ heads in the opposite direction of $\vec{v}$. Also make the numbers for this projection nicer. A problem showing two vectors are orthogonal would be good.
- Recitation 27: Problem 2: Make better numbers for their cross product.

- Recitation 29: Problem 1: Should this point (1,-2,3) be a intersection point for the other two lines? Better numbers in 2. Variables are hard to see in the graphs for Problem 4.