Homework 4 Problem 5 Review
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Problem 5a

1. I got a little confused on the step where you jump to $|x-2| < \frac{\epsilon}{4}$, for $1 < x < 3$. I think you took $\frac{\epsilon}{|x+1|}$ and plugged in 3 for x, but it might be helpful if you explicitly state what you are doing.

2. For the last part, I'm not sure that your steps are in the right order. I may be wrong but in class, we said "Let δ_ϵ = something. Then $0 < x < \delta_\epsilon$..." Then we showed how $-\epsilon_\delta < x < \delta_\epsilon$ led to $-\epsilon < f(x) < \epsilon$. Thus, $\big|f(x)\big| < \epsilon$. What you have may be fine, but I just noticed it was a little different than what we did in class.

Problem 5b

1. I like that you went through the process of actually taking the derivative of $sin(x)+cos(x)$ to show the maximum.

2. Mayb say something about the fact that $\sqrt{2}$ being the max value of $sin(x) + cos(x)$ that it is an upper bound and if we can prove $x^2\sqrt{2} < \epsilon$, we know that $x^2(sin(x) + cos(x)) < \epsilon$ as well.

3. Same as the proof part on $5a$.