General announcements

▶ Hint on Exercise 3: Taylor expansion.
Construct a Taylor polynomial approximation for \( \ln(1 + x) \) that is accurate to within \( 10^{-3} \) over \([-\frac{3}{4}, \frac{3}{4}]\).
Use the book’s statement of Taylor’s theorem, particularly

\[
R_n(x) = \frac{1}{n!} \int_{x_0}^{x} (x - t)^n f^{(n+1)}(t) \, dt.
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Bound \( \frac{x-t}{1+t} \) in terms of \( x \). Plotting this as a function of \( t \) for several values of \( x \) provides inspiration.
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- **Not many people used “newpageoffigures,” “newfigure,” and “printfigures” on the lab.** That’s okay, but it makes me wonder if people are having trouble producing plots.

- **The fplot command takes a third parameter, specifying the minimum number of points to use when plotting, e.g.,**

  ```matlab
  fplot(@(x) exp(-10000*(x-0.5).^2), [-1,1], 100);
  ```

Test 1 on Monday, 3/12, covering material through the bisection method (today’s lecture).
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- Overall, I am very happy with the work on the first lab. The problem statement required you to think through many issues and come up with some clever ideas. I saw people working hard, and the final product shows.
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Lab: Computing erf

- On Wednesday, I suggested the idea of piecing together different approximations. The piecewise function is useful for this.