18.034, Honors Differential Equations
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1. We didn't do any variation of param's problem in lecture. There will be a variation of param's problems on the exam. Emphasize that they should know the formula

$$y_{\partial}(t) = \int_{t_0}^{t} \left(\frac{y_1(s)y_2(t) - y_1(t)y_2(s)}{W[y_1 y_2](s)} \right) f(s)ds$$

even if they don't know how to derive it. May be see this says for a linear, const. coeff. ODE $(K(s,t) = k(t-s))$.

2. Fourier coeff. problem. We haven't yet computed any Fourier coeffs. of an actual funct. E.g. $f(t) = t$. By even/odd, $A_n = 0$ all n.

$B_n = \frac{(-1)^{n+1}2L}{n\pi}$, $t = \sum_{n=1} \frac{(-1)^{n+1}2L}{n\pi} \sin\left(\frac{n\pi t}{L}\right)$.

Sub in $t = \frac{L}{2}$ and get, $\boxed{\sum_{m=1}^{\infty} \frac{(-1)^m}{2m+1} = \frac{\pi}{4}}$

3. We haven't talked about how even/odd determines some coeffs are O.

4. We haven't discussed (and we are <u>not</u> going to prove) that the Fourier series converges uniformly/ pointwise to f(t) if f(t) is cts.

5. <u>Most important</u>: Begin reviewing for Exam 2.