SOLVING LINEAR IVPs USING LAPLACE TRANSFORMS WHEN ...

A. The initial conditions don’t start at 0 (as in Ex 1), or
B. The coefficients are not constants (as in Ex 2).

A. When the initial conditions don’t start at 0, then ...

1. 

How does this help?

2. 

Warning!!

3. 

4. 

Ex 1: Solve the IVP $w'' + w = \sin 2t$, $w(\pi) = 2, w'(\pi) = 1$. 
B. When the coefficients are not constants, then you will need the following theorem . . .

**Thm:** If $\mathcal{L}\{f\}$ exists, then . . .

**Ex 2:** Solve the IVP $y'' + ty' - y = 0$, $y(0) = 0$, $y'(0) = 3$. 
**Ex 3:** Solve the IVP \( y'' + 2ty' - 4y = 1, \quad y(0) = y'(0) = 0. \)