

MA 341 REVIEW SHEET FOR TEST 2

- **4.2/4.3 Homogeneous Linear Equations**
 - Know the 3 cases for $ay''+by'+cy=0$
- **4.4 Method of Undetermined Coefficients**
 - Know how to find the particular solution and solve IVPs.
 - p.180 #13,15,21, 33,34
- **4.5 Superposition Principle and Undetermined Coefficients Revisited**
 - Using the Superposition principle determine the form of the correct solution
 - Know what to do if y_p overlaps y_c
 - Solve IVPs
 - Be able to prove the superposition principle (p. 181)
 - Examples p. 185 #1,17,19,21,23,25, 33,35
 - & [Method of Undetermined Coefficients](#)
- **4.6 Variation of Parameters**
 - Know when to use variation of parameters
 - Memorize method p.189 so that you can apply it
 - Examples: p. 191 # 1,2,3,5,7,13,15 & [Variation of Parameters WS](#)
- **4.9 A Closer Look at Free Mechanical Vibrations**
- -Be able to fill in equation (1) from p. 212
- Know the different kinds of damping
- Examples: p. 220 # 1, 7,9 (You will NOT have to find amplitude, period and frequency, etc)
- **4.10 A Closer Look at Forced Mechanical Vibrations**
 - Know what the steady-state solution is
 - Examples: p. 228 # 9,11,13
 - [Spring Motion](#)
- **7.2 Definition of Laplace Transform**
 - Memorize the definition of the Laplace transform (p. 353) and be able to use it.
 - Ex p. 360 #1, 3,9,12 and you will need to be able to find the domain of the transform
 - Be able to prove the linearity of the Laplace transform (p. 355)
 - I'll give you the transforms on p. 356. Be able to use them. Ex: p. 356 #13, 15, 17, 19
- **7.3 Properties of the Laplace Transform**
 - I'll give you the transforms on p. 365 with the exception of the first 2 properties.
 - Examples: p. 365 #1,3,5,9,21
- **7.4 Inverse Laplace Transform**

-Know the method of partial fractions ex. p. 374-375 # 1,3,5,21, 23, 25
[Inverse Laplace Transform](#)

- **7.5 Solving Initial Value Problems**

- Know the Method of Laplace Transforms p. 376

- Examples: p. 382-383 #1,3,4,5,11,25, 35

- **7.6 Transforms of Discontinuous Functions**

- Know the definition of the unit step function p. 384

- Express a function using unit step functions and be able to compute its Laplace Transform ex: p390 # 5,7,11,13,15,19, 21,23,29,33 & [Unit Step Functions WS](#)

- [Inverse Laplace practice with Unit Step Functions](#)