

**242 - Differential Equations: Test 4 Study Guide**  
Henson - Summer 09

TEST 4 TOPICS:

1. Computing Laplace Transforms by hand.
2. Compute the exponential order  $\alpha$  of a function  $f(t)$ .
3. Use a table to compute the Laplace Transform of a function.
4. Compute the Laplace transform of  $y''$ ,  $y'$ , and  $y$ .
5. Compute the Inverse Laplace transform of  $F(s)$ .
6. Solve a DE using the Method of Laplace Transforms.
7. Find the Laplace transform of a discontinuous function.
8. Write a discontinuous function in terms of the unit step function  $u(t - a)$ .
9. Rewrite a DE to handle initial conditions not given at  $t = 0$ .
10. Solve a DE with initial conditions not at  $t = 0$ .

Also...

\* Know the algebra techniques of 'completing the square' and 'partial fraction decomposition'