

Math 17 **B**
Kouba
Worksheet **5**

Use a Laplace transform then an inverse Laplace transform to solve each of the following differential equations.

1.) $y' = 2t + 3$ and $y(0) = 4$

2.) $y' = e^t$ and $y(0) = 2$

3.) $y' = t + \sin t$ and $y(0) = 0$

4.) $y' = te^t$ and $y(0) = 1$

5.) $y'' = 6$ and $y(0) = 1, y'(0) = 2$

6.) $y'' = 6t$ and $y(0) = 0, y'(0) = -1$

7.) $y'' = \cos t$ and $y(0) = 0, y'(0) = 0$

8.) $y'' - y' - 2y = 0$ and $y(0) = 5, y'(0) = 1$

9.) $y'' + y' = 1$ and $y(0) = 2, y'(0) = 3$