MA 226 Worksheet
Integrating Factors

Find the general solution to the following linear differential equations:

1.) $y' - 2y = t^2 e^{2t}$

2.) $y' + (1/t)t = 3\cos 2t$

3.) $y' + 2ty = 2te^{-t^2}$

4.) $2y' + y = 3t^2$

Find the solutions to the following initial value problems:

5.) $ty' + 2y = t^2 - t + 1$, $y(1) = 1/2$

6.) $y' + (2/t)y = (\cos t)/t^2$, $y(\pi) = 0$

7.) $ty' + 2y = \sin t$, $y(\pi/2) = 1$

8.) $t^3 y' + 4t^2 y = e^{-t}$, $y(-1) = 0$