

MATH2214 - Class Work No2- Fall 03- Konaté

Problem 1•

Find the general solution of the differential equation using both the method of undetermined coefficients and the method of variation of constants:

$$2y'' + 3y' + y = t^2 + 3 \sin(t)$$

Problem 2•

Find the general solution of the differential equation using the method of undetermined coefficients:

$$y'' + y' - 2y = t^2 + 2t - 2e^{-2t} \cos(t) + te^{-t}$$

Problem 3•

Find the general solution of the differential equation :

$$y'' - 2y' + y = \frac{e^t}{1+t^2}$$

Problem 4•

Consider the differential equation:

$$ty'' - (1+t)y' + y = t^2e^{2t}; \quad t > 0 \quad (1)$$

4.1• Verify that $y_1(t) = 1 + t$ is a solution of the homogeneous equation associated with (1);

4.2• Find $y_2(t)$ such that its constitutes together with $y_1(t)$ a set of fundamental solutions of the homogeneous equation associated with (1);

4.3• find the general solution of (1).
