SS2065: INTRO TO PDEs

Summer School, 2012

Assignment 1: to be handed to your tutor during the tutorial on Friday 13th January
Late assignments will not be accepted

The total mark for all assignments is worth 20% of your final mark

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1. Find the solution $x(t)$ of
$$\frac{dx}{dt} = -5x$$
subject to $x(0) = -3$.

2. Find the general solution $y(x)$ of
$$y'' - 6y' + 9y = 0$$

3. Given the ODE
$$y'' - 4y' - 3y = 0$$
   (a) Find the solution $y(x)$. Express you answer
      (i) in terms of exponentials
      (ii) in terms of hyperbolic functions cosh and sinh (see Tutorial 1, Q5).
   (b) Find the solution of the ODE subject to $y(0) = 0$, $y'(0) = 1$.

4. Find the general solution $y(x)$ of
$$y'' - 2y' + 5y = 10x^2 - 2$$

5. Find the solution $y(x)$ of
$$y'' - 4y' + 3y = 4e^{3x}$$
subject to $y(0) = 1$, $y'(0) = 0$.