1. Consider the differential equation
$$y' - 5y = 0$$

   Let $y_1(x) = e^{rx}$. Find the value of r which makes y_1 a solution of the equation.

2. Consider the differential equation
$$y' - 5y = 4x$$

   Find constants m and b so that $y_2(x) = mx + b$ solves the equation.

3. With these values of r, m and b, show that $y(x) = Cy_1(x) + y_2(x)$, i.e., $y(x) = Ce^{rx} + mx + b$ solves this differential equation for any constant C.

4. Again using these values of r, m and b, solve the differential equation with initial condition $y(0) = 0$. That is, find the value of C which makes both this and the differential equation true.