Name: _____ Group

1. Find the general solution of the homogeneous, linear, second order differential equation $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 3y = 0$.

2. Find a particular solution of the non-homogeneous differential equation $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 3y = 6x - 5$ by the method of undetermined coefficients.

3. By using the previous parts, write down the general solution of the non-homogeneous differential equation $\dfrac{d^2y}{dx^2} - 4\dfrac{dy}{dx} + 3y = 6x - 5$.

4. Using the previous part, find the solution of the non-homogeneous differential equation $\dfrac{d^2y}{dx^2} - 4\dfrac{dy}{dx} + 3y = 6x - 5$ that satisfies the pair of initial conditions $y(0) = 5$ and $y'(0) = 14$.

5. Check your answer to the previous part: if you plug the solution back into the differential equation $\dfrac{d^2y}{dx^2} - 4\dfrac{dy}{dx} + 3y = 6x - 5$, does it really work?