M1B/Schoenbrun   Linear Differential Equations

For each equation, what is the dimension of the vector space formed by the solutions, and provide a basis for this vector space.
Find a general solution of the following differential equations.

1) $y'' + 4y' + 4y = 0$

2) $y''' - 3y'' + 3y' - y = 0$

Find the orthogonal trajectories. Describe the curves.   Use your graphing calculator if helpful.

3) $y^2 = kx^3$

4) $y = \dfrac{k}{x}$