Name: _____

Directions: Show all work. No credit for answers without work.

1. [**3 points**] Find the general solution to $2y'' + 10y' + 17y = 0$. Express your answer in terms of real numbers.

2. [**3 points**] Solve the IVP $y'' + 5y' - 14y = 0$ with $y(0) = 2$ and $y'(0) = -1$. Express your answer in terms of real numbers.

3. [**3 points**] Show that $y_1(t) = \cos 2t$ and $y_2(t) = \sin 2t$ are solutions to $y'' + 4y = 0$. Then, decide if y_1 and y_2 form a fundamental set of solutions. Show your work.

4. [**1 point**] Given that $y_1 = \cos t$, find a function y_2 so that the Wronskian $W(t)$ of y_1 and y_2 satisfies $W(t) = \cos^2 t$.