MATH 246 Groupwork 2.4

Name: _____

- 1. Find and factor the characteristic polynomials for each of the following:
 - (a) y'' y' 20y = 0
 - (b) y''' + 8y'' + 16y' = 0
- 2. Find a fundamental set of solutions for each of the following, then write down the general solution.
 - (a) 2y'' + 5y' 12y = 0

(b) $D^5y + 2D^4y + 6D^3y = 0$

3. Solve the initial value problem

$$y'' - 2y' + y = 0$$
 with $y(0) = -1$ and $y'(0) = 2$

4. Describe as best you can the behavior of the function $y = 2e^{-5t} - 6e^{2t}$. Specifically what happens as $t \to \infty$, as $t \to -\infty$ and for t near 0?