Math 260 Quiz # 6

Name: Solution Serial # _____

1. Find the general solution of the following DE:

$$y^{(4)} + 3y'' - 4y = 0$$

The characteristic eqⁿ is $\lambda^4 + 3\lambda^2 - 4 = 0$

$(\lambda - 1)(\lambda + 1)(\lambda^2 + 4) = 0$

$\lambda = 1, -1, 2i, -2i$

the general solution is:

$y = C_1 e^{x} + C_2 e^{-x} + C_3 \cos 2x + C_4 \sin 2x$

$1 \mid 1 \quad 0 \quad 3 \quad 0 \quad -4$
$\quad\quad\; 1 \quad 1 \quad 4 \quad 4$
$\quad 1 \quad 1 \quad 4 \quad 4 \quad 0$

$\Rightarrow (\lambda - 1)(\lambda^3 + \lambda^2 + 4\lambda + 4)$

$-1 \mid 1 \quad 1 \quad 4 \quad 4$
$\quad\quad -1 \quad 0 \quad -4$
$\quad 1 \quad 0 \quad 4 \quad 0$

$\Rightarrow (\lambda - 1)(\lambda + 1)(\lambda^2 + 4)$