HW 6.3

14. $D-5$

19. $(D+2)^2[xe^{-2x}] = 0$

$[(D+5)^2+3^2]^2[xe^{-5x}\sin 3x] = 0$

$\therefore$ $A = (D+2)^2[(D+5)^2+3^2]^2$

24. $L = D^2-1$, $A = (D-1)^2$

$\therefore$ $AL = (D-1)^2(D+1)(D-1)$

$= (D-1)^3(D+1)$

$\therefore$ $y = c_1e^{-x} + (c_2+c_3x+c_4x^2)e^x$

$\because$ $y_h = c_1e^{-x} + c_2e^x$

$\therefore$ $y_p = (c_3x+c_4x^2)e^x$

$= x(c_3+c_4x)e^x$

30. $y_p = c_4xe^x + c_5$