In Section 7.3, when the instructions say to not use annihilators, it means you should determine the form of a trial solution (usual, or modified if needed) and then determine what the constants $A_i$ are.

The solution in the back of the book for 7.3 #19 has a $3x - 1$ in it. I don’t know why the author has included the -1 here, because if you split the term $\frac{5}{9}e^{2x}(3x - 1)$ into two terms $\frac{5}{3}xe^{2x} - \frac{5}{9}e^{2x}$, then the second term is really redundant, because there is already a term $c_1e^{2x}$ in the solution, and the $-\frac{5}{9}e^{2x}$ can be absorbed into it. So you can ignore the $-1$ if your solution doesn’t appear to match the textbook solution.

**SOLUTIONS:** (I hope these are correct! Let me know of any errors.)

Section 7.3

(2) $-\frac{6}{7}xe^{3x} + c_1e^{3x} + c_2e^{4x} + c_3e^{-4x}$

(4) $\frac{1}{3}x^2 - 2x^3 + c_0 + c_1x + c_2\cos x + c_3\sin x$

(18) $\frac{4}{15}\cos x + c_1\cos 4x + c_2\sin 4x$

Section 8.2

(2) $x_1(t) = -2c_1e^{3t} - c_2e^{2t}, \quad x_2(t) = c_1e^{3t} + c_2e^{2t}$

(4) $x_1(t) = c_1\cos 2t + c_2\sin 2t, \quad x_2(t) = -c_1\sin 2t + c_2\cos 2t$

(8) $x_1(t) = e^{2t} + 2e^{-t}, \quad x_2(t) = e^{2t} - e^{-t}$