Math 2280 HOMEWORK #7 Name:

Due 10/10/2025, 8:30 A.M.

Solve the following problems and staple your solutions to this cover sheet. (Computer outputs must be put in the appropriate place in the solution, not attached as an appendix. You may physically cut and paste the output in the problem or allow appropriate space in the printout to add your hand written work.)

1. Sec 4.4 #16
2. Sec 4.4 #23
3. Sec 4.5 #20
4. Sec 4.5 #21
5. Sec 4.5 #25
6. Sec 4.5 #28
7. Sec 4.6 #3
   Note: Must use $v_1' = \frac{-y_2\, g}{W(y_1,y_2)}$ and $v_2' = \frac{y_1\, g}{W(y_1,y_2)}$.
8. Sec 4.6 #11
   Note: Must use $v_1' = \frac{-y_2\, g}{W(y_1,y_2)}$ and $v_2' = \frac{y_1\, g}{W(y_1,y_2)}$. Hint: You can evaluate $\int -\sin t \tan^2 t\, dt$ using $u = \cos t$! $\int \frac{\sin^2 t}{\cos t}\, dt = \cdots = \ln|\sec t + \tan t| - \sin t$, using $C = 0$.
9. Sec 4.6 #16
   Hint: You can use the method of undetermined coefficient or the method of variation of parameters. Note: For the method of variation of parameters, you must use $v_1' = \frac{-y_2\, g}{W(y_1,y_2)}$ and $v_2' = \frac{y_1\, g}{W(y_1,y_2)}$.
10. Sec 4.7 #38
    Note: Must use $v_1' = \frac{-y_2\, g}{W(y_1, y_2)}$ and $v_2' = \frac{y_1\, g}{W(y_1, y_2)}$. Hint: $g(t) = \frac{t^3+1}{t^2}$.
11. Free points!
12. Free points!