Math 2280 HOMEWORK #13 Name:

Due 12/04/2026, 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 6.2 #9
   Hint: $(a \pm b)^3 = a^3 \pm 3a^2b + 3ab^2 \pm b^3$.

2. Sec 6.2 #20
   Hint: $r = -1$ is one root of the auxiliary equation.

3. Solve $y^{(4)} + 2y'' + 4y = 0$.
   Hints: Find the square roots of $-1 \pm \sqrt{3}\, i$. See your first homework. You can use Mathematica to check your solutions of the auxiliary equation.

4. Sec 6.3 #6

5. Sec 6.3 #9
   Hint: The particular solution is of the from $y_p = A\, x^3\, e^x$.

6. Sec 6.3 #32

7. Sec 6.4 #2

8. Sec 6.4 #5

9. Sec 6.4 #7
   Hint: Write the ODE in its standard form.

10. Free points!

11. Free points!

12. Free points!