

Due 2/21/2025, 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 4.2 #27

Hint: Two functions are linearly dependent on an interval I iff one of them is a constant multiple of the other on all of I .

2. Sec 4.2 #29

Hint: Two functions are linearly independent on an interval I iff neither is a constant multiple of the other on all of I .

3. Find the Wronskian of functions $f(t) = e^{\alpha t} \cos(\beta t)$ and $g(t) = e^{\alpha t} \sin(\beta t)$. Hint: We did this in class!4. Find the Wronskian of functions $f(t) = e^{rt}$ and $g(t) = t e^{rt}$. Note: We will do this in a future class.

5. Sec 4.4 #6 & #7

6. Sec 4.4 #16

7. Sec 4.4 #23

8. Sec 4.5 #1(b) & #2(b)

9. Sec 4.5 #20

10. Sec 4.5 #25

11. Sec 4.5 #28

12. Free points!