

MAT22B — HW #4

Due: Monday, 27 April.

§2.5 #12, 14, 18

§3.1 #3, 6, 13, 14

Additional problem: Prove that $y = te^{r_1 t}$ is a solution of the constant coefficient equation $ay'' + by' + cy = 0$ **if and only if** r_1 is the *only* root of the characteristic polynomial $ar^2 + br + c$.

(Hint: the “discriminant” of the polynomial is useful here. Don’t forget there are two parts to proving an “if and only if” statement.)

§3.5 #5, 6, 18