

Hwmk 14

Math 528 Summer Session 1

Due 6/14 (Monday at 11:59 pm)

1 Frobenius

Find the roots of the indicial polynomial (1 point). Then Find the first solution to the following differential equations by the Frobenius method about the regular singular point $x = 0$ (3 points) and write the form of the second solution (1 point). Try to identify the series as expansions of known functions. If you cant find a known function, find up to $\mathcal{O}(t^6)$.

(a) 5 points

$$xy'' + y = 0$$

(b) 5 points

$$xy'' + (1 - x)y' - y = 0$$