

Math 225 – Quiz #5: Reduction of Order

Clearly and neatly show all work for each problem. Solutions with no work will receive no credit.

The function $y_1(x)$ is a solution for the given differential equation. Use reduction of order to find a second solution $y_2(x)$.

(1) $6y'' + y' - y = 0$; $y_1 = e^{x/3}$

(2) $xy'' + y' = 0$; $y_1 = \ln x$

(3) $x^2y'' - 3xy' + 5y = 0$; $y_1 = x^2 \cos(\ln x)$