

Let y_1, y_2 be twice differentiable functions on an interval (a, b) whose Wronskian is nowhere zero. Show that there is a second order, linear equation

$$L[y] = y'' + py' + qy = 0$$

which has $\{y_1, y_2\}$ as a fundamental set of solutions.

Find L when $y_1 = e^{2t}$, $y_2 = t$ on the interval $(-1/2, 1/2)$.