

NAME: \_\_\_\_\_

DfyQ \_\_\_\_\_ Q8 \_\_\_\_\_ Ord: \_\_\_\_\_  
MAP2302

Determinant of  $M := \begin{bmatrix} 3 & 4 \\ 7 & 5 \end{bmatrix}$  is  $[3 \cdot 5] - [4 \cdot 7] = -13$ .

Op  $L(y) := t^2 y'' + 5ty' + 3y$  is equidimensional. So  
 $y(t) = \dots$  satisfies  $L(y) = 0$ .

**ED Soln:** We seek real number  $\mathbf{r}$  st.  $L(t^{\mathbf{r}}) = 0$ . Note  
 $L(t^{\mathbf{r}}) = t^{\mathbf{r}} \cdot q(\mathbf{r})$ , where  $q(z) := z^2 + [5 - 1]z + 3$ .  
Thus  $q(z) := [z + 3] \cdot [z + 1]$ ; hence both  $t^{-3}$  and  $t^{-1}$   
are annihilated by  $L$