KFUPM/ Department of Mathematics & Statistics | ID # | Serial #
MATH 202/ Quiz 3/ 111 | Name

1. Determine the singular points of the DE and classify each of them as regular or irregular:

$$x^2(x-4)^2y'' + 3xy' - (x-4)y = 0$$

2. Find the indicial equation and indicial roots of the DE: $2x^2y'' + xy' - (2x^2+1)y = 0$

3. Find the eigenvalues and eigenvectors of the matrix $A = \begin{pmatrix} 4 & -2 & 1 \\ 2 & 0 & 1 \\ 2 & -2 & 3 \end{pmatrix}$