

Sr:

ID:

Name:

Q 1 [5 points]: Use eigenvalues and eigenvectors to solve the system of ordinary differential equations:

$$x'(t) = x(t) + 3z(t), \quad y'(t) = y(t), \quad z'(t) = 2z(t). \quad (1)$$

Q 2 [5 points]: Use eigenvalues and eigenvectors to find f and g satisfying:

$$\begin{aligned} f'(x) &= 12f(x) - 9g(x), \\ g'(x) &= 4f(x). \end{aligned}$$