

Name:

1. Is the subset W of all 3×3 diagonal matrices a subspace of M_{33} ? Explain.

2. Consider the vectors

$$f_1 = x + 1, \quad f_2 = x^2 + x, \quad f_3 = x^2 + x + 2.$$

Is $\{f_1, f_2, f_3\}$ a basis for P_2 ? Explain.