Math 205
Quiz #2

1. Is $3x^2$ in $\text{Span}\{x^2 - x, x^2 + x + 1, x^2 - 1\}$?

Yes, $3x^2 = (x^2 - x) + (x^2 + x + 1) + (x^2 - 1)$

2. If A is a 2×2 matrix and $\mathbf{b}$ is a nonzero 2×1 vector, do the solutions of the equation $A\mathbf{x} = \mathbf{b}$ form a subspace of $\mathbb{R}^2$? Why or why not?

No, $A\vec{0} = \vec{0} \neq \vec{b}$ and thus $\vec{0}$ is not in the space of solutions to $A\vec{x} = \vec{b}$.