THEOREM 6

Suppose the equation $A\mathbf{x} = \mathbf{b}$ is consistent for some given \mathbf{b} , and let \mathbf{p} be a solution. Then the solution set of $A\mathbf{x} = \mathbf{b}$ is the set of all vectors of the form $\mathbf{w} = \mathbf{p} + \mathbf{v}_h$, where \mathbf{v}_h is any solution of the homogeneous equation $A\mathbf{x} = \mathbf{0}$.



FIGURE 6 Parallel solution sets of $A\mathbf{x} = \mathbf{b}$ and $A\mathbf{x} = \mathbf{0}$.