

This system has no solution since there is no point simultaneously contained in all three planes; see Figure 3.4.

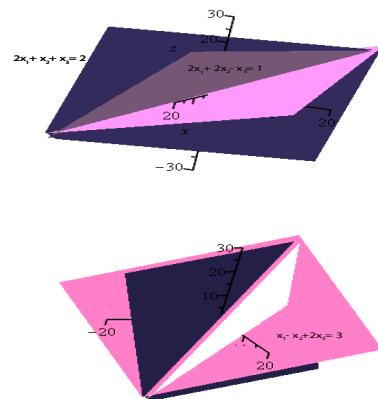


Figure 3.4: The linear system $x_1 + 2x_2 - x_3 = 1$, $2x_1 + x_2 + x_3 = 2$, $x_1 - x_2 + 2x_3 = 3$ has no solution.

Finally, the planes corresponding to the system

$$\begin{aligned} x_1 + 2x_2 - x_3 &= 3 \\ 2x_1 + x_2 + x_3 &= 3 \\ x_1 - x_2 + 2x_3 &= 0, \end{aligned}$$

are illustrated in Figure 3.5.

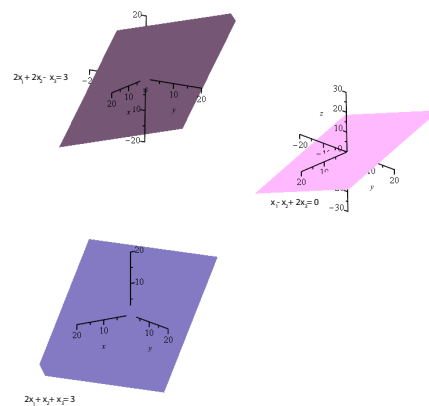


Figure 3.5: The planes defined by the equations $x_1 + 2x_2 - x_3 = 3$, $2x_1 + x_2 + x_3 = 3$, and $x_1 - x_2 + 2x_3 = 0$.