

Section 3: Matrices and simultaneous equations

Crucial points

1. **Be careful when solving matrix equations for which the matrix has no inverse**

It is tempting to immediately conclude that there is no solution, but in fact what this means is that there is no unique solution, and there may be either no solution or infinitely many solutions.

2. **Make sure you understand the connection between three planes and the solution of three simultaneous equations**

If three planes intersect at a point, there is a unique solution

If the planes form a sheaf, they intersect along a line so there are infinitely many solutions

If the planes form a triangular prism, or if two or more of them are parallel, there are no solutions