Using Matrices for Simultaneous Equations

Examples

1. Use matrices to solve the set of linear equations

1. $2x+3y+z=1 $
2. $x+2y+z=2 $
3. $3x+y+z=0$

2. Use an inverse matrix to solve the simultaneous equations:

 $-x+6y-2z=21$

 $6x-2y-z=-16$

 $-2x+3y+5z=24$

Modelling Example

A colony of 1000 mole-rats is made up of adult males, adult females and youngsters. Originally there were 100 more adult females than adult males.

After one year:

* The number of adult males had increased by 2%
* The number of adult females had increased by 3%
* The number of youngsters had decreased by 4%
* The total number of mole-rats had decreased by 20

Form and solve a matrix equation to find out how many of each type of mole-rat were in the original colony.