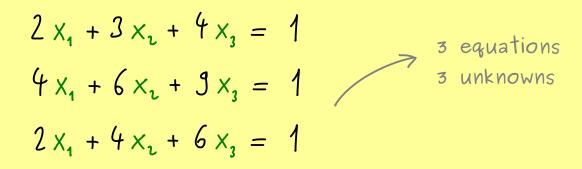
ON STEADY

The Bright Side of Mathematics



Linear Algebra - Part 36

System of linear equations:



short notation:  $A = b \xrightarrow{\text{augmented matrix}} (A \mid b)$ 

Example:

Better method: Gaussian elimination

Example: 
$$X_1 + 3X_2 = 7$$
 (equation 1)  
 $2 x_1 - x_2 = 0$  (equation 2) - 2 (equation 1)  
eliminate  $X_1$   
 $X_1 + 3X_2 = 7$  (equation 1)  
 $X_1 + 3X_2 = 7$  (equation 1)  
 $X_1 + 3X_2 = 7$  (equation 1)

$$0 - 7x_{1} = -14$$
 (equation 2)'  $\cdot \left(-\frac{1}{7}\right)$ 

$$x_{2} = 2$$
 (equation 2)  
 $\implies X = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$  solution