3x3 Matrices

And word problems

3x3 Determinant

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

3x3 Determinant

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

Remember with a 2x2 you take the difference of the cross multiplication. (not mathematically termed)

For a 3x3 take parts as follows…

3x3 Determinant

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

$$a \begin{vmatrix} f & g \\ i & j \end{vmatrix}$$

3x3 Determinant

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

$$a \begin{vmatrix} f & g \\ i & j \end{vmatrix} \quad -b \begin{vmatrix} e & g \\ h & j \end{vmatrix}$$

3x3 Determinant

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

$$a \begin{vmatrix} f & g \\ i & j \end{vmatrix} \quad -b \begin{vmatrix} e & g \\ h & j \end{vmatrix} \quad +c \begin{vmatrix} e & f \\ h & i \end{vmatrix}$$

3x3 Determinant

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

$$a\begin{vmatrix} f & g \\ i & j \end{vmatrix} - b\begin{vmatrix} e & g \\ h & j \end{vmatrix} + c\begin{vmatrix} e & f \\ h & i \end{vmatrix}$$

Lets look at a previous example

Eqn1: $3y - 2z = 6$

Eqn2: $2x + z = 5$

Eqn3: $x + 2y = 8$

$$\begin{vmatrix} a & b & c \\ e & f & g \\ h & i & j \end{vmatrix}$$

Lets look at a previous example

Eqn1: $3y - 2z = 6$

Eqn2: $2x + z = 5$

Eqn3: $x + 2y = 8$

$$\begin{vmatrix} 0 & 3 & -2 \\ 2 & 0 & 1 \\ 1 & 2 & 0 \end{vmatrix} \qquad \begin{vmatrix} 6 \\ 5 \\ 8 \end{vmatrix}$$