

Solve the set of linear equations by the matrix method, find c.

$$\begin{cases} a + 3b + 2c = 3 \\ 2a - b - 3c = -8 \\ 5a + 2b + c = 9 \end{cases}$$

$$A = \begin{pmatrix} 1 & 3 & 2 \\ 2 & -1 & -3 \\ 5 & 2 & 1 \end{pmatrix}$$

$$C = \begin{pmatrix} 3 \\ -8 \\ 9 \end{pmatrix}$$

Solution to the system of equations is given by: $X = A^{-1}C$

The inverse of A to be:

$$A^{-1} = \begin{pmatrix} -0.179 & -0.04 & 0.25 \\ 0.61 & 0.32 & -0.25 \\ -0.32 & -0.46 & 0.25 \end{pmatrix}$$

Multiplying A^{-1} on C we get C

$$X = \begin{pmatrix} 2 \\ -3 \\ 5 \end{pmatrix}$$

So $a = 2$, $b = -3$, $c = 5$

Answer: (C) 5