

Answer on Question#39733, Math, Linear Algebra

If M, N, P are three matrices and $M \cdot N = I$, and $N \cdot P = I$ where I is the identity matrix. Prove that $M = P$ using associative law.

Solution

We have

$$(M \cdot N) = I.$$

Let's multiply this equation by P :

$$(M \cdot N) \cdot P = P.$$

We can use associative law for multiplying matrices:

$$(M \cdot N) \cdot P = M \cdot (N \cdot P) = P.$$

But we know that $(N \cdot P) = I$, so

$$M \cdot (N \cdot P) = M \cdot I = M = P.$$

Now we proved that $M = P$.