Step-1

Given that the first component of Ax is $\sum a_{1j}x_j = a_{11}x_1 + a_{12}x_2 + \ldots + a_{1n}x_n$. We have to write the formulas for the third component and of Ax and $(1,1)$ entry of A^2.

Step-2

The third component of AX is

$$(\text{row3}).x = \sum a_{3j}x_j$$

$$= a_{31}x_1 + a_{32}x_2 + \ldots + a_{3n}x_n$$

Step-3

$(1,1)$ entry of A^2 is given as

$$\left(A^2\right)_{11} = (\text{row1}).(\text{column1})$$

$$= \sum a_{1j}a_{j1}$$