

Question:

(1) Given that $A = \begin{pmatrix} 1 & 5 \\ 4 & 2 \end{pmatrix}$, $B = \begin{pmatrix} p & 3 \\ q & 4 \end{pmatrix}$ and $C = \begin{pmatrix} -3 & 23 \\ 6 & 20 \end{pmatrix}$

Find

(a) A^2

(b) p and q if $AB = C$