

a_{11}	a_{12}	a_{13}	a_{14}
a_{21}	a_{22}	a_{23}	a_{24}
a_{31}	a_{32}	a_{33}	a_{34}
a_{41}	a_{42}	a_{43}	a_{44}

X

b_{11}	b_{12}	b_{13}	b_{14}
b_{21}	b_{22}	b_{23}	b_{24}
b_{31}	b_{32}	b_{33}	b_{34}
b_{41}	b_{42}	b_{43}	b_{44}

$$A_{11} = \begin{array}{|c|c|} \hline a_{11} & a_{12} \\ \hline a_{21} & a_{22} \\ \hline \end{array}$$

$$A_{12} = \begin{array}{|c|c|} \hline a_{13} & a_{14} \\ \hline a_{23} & a_{24} \\ \hline \end{array}$$

$$B_{11} = \begin{array}{|c|c|} \hline b_{11} & b_{12} \\ \hline b_{21} & b_{22} \\ \hline \end{array} \quad B_{12} = \begin{array}{|c|c|} \hline b_{13} & b_{14} \\ \hline b_{23} & b_{24} \\ \hline \end{array}$$

$$A_{21} = \begin{array}{|c|c|} \hline a_{31} & a_{32} \\ \hline a_{41} & a_{42} \\ \hline \end{array}$$

$$A_{22} = \begin{array}{|c|c|} \hline a_{33} & a_{34} \\ \hline a_{43} & a_{44} \\ \hline \end{array}$$

$$B_{21} = \begin{array}{|c|c|} \hline b_{31} & b_{32} \\ \hline b_{41} & b_{42} \\ \hline \end{array} \quad B_{22} = \begin{array}{|c|c|} \hline b_{33} & b_{34} \\ \hline b_{43} & b_{44} \\ \hline \end{array}$$

$$\begin{matrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{matrix}$$

\times

$$\begin{matrix} B_{11} & B_{12} \\ B_{21} & B_{22} \end{matrix}$$

$=$

$$\begin{matrix} A_{11} & \times & B_{11} & A_{11} & \times & B_{12} \\ & + & & & + & \\ A_{12} & \times & B_{21} & A_{12} & \times & B_{22} \\ A_{21} & \times & B_{11} & A_{21} & \times & B_{12} \\ & + & & & + & \\ A_{22} & \times & B_{21} & A_{22} & \times & B_{22} \end{matrix}$$

$$A_{11} \times B_{11} = \begin{array}{|c|c|} \hline & a_{11} * b_{11} + a_{12} * b_{21} & a_{11} * b_{12} + a_{12} * b_{22} \\ \hline a_{21} * b_{11} + a_{22} * b_{21} & a_{21} * b_{12} + a_{22} * b_{22} & \\ \hline \end{array} \quad A_{12} \times B_{21} = \begin{array}{|c|c|} \hline & a_{13} * b_{31} + a_{14} * b_{41} & a_{13} * b_{32} + a_{14} * b_{42} \\ \hline a_{23} * b_{31} + a_{24} * b_{41} & a_{23} * b_{32} + a_{24} * b_{42} & \\ \hline \end{array}$$

$$A_{11} \times B_{12} = \begin{array}{|c|c|} \hline & a_{11} * b_{13} + a_{12} * b_{23} & a_{11} * b_{14} + a_{12} * b_{24} \\ \hline a_{21} * b_{13} + a_{22} * b_{23} & a_{21} * b_{14} + a_{22} * b_{24} & \\ \hline \end{array} \quad A_{12} \times B_{22} = \begin{array}{|c|c|} \hline & a_{13} * b_{33} + a_{14} * b_{43} & a_{13} * b_{34} + a_{14} * b_{44} \\ \hline a_{23} * b_{33} + a_{24} * b_{43} & a_{23} * b_{34} + a_{24} * b_{44} & \\ \hline \end{array}$$

$$A_{21} \times B_{11} = \begin{array}{|c|c|} \hline & a_{31} * b_{11} + a_{32} * b_{21} & a_{31} * b_{12} + a_{32} * b_{22} \\ \hline a_{41} * b_{11} + a_{42} * b_{21} & a_{41} * b_{12} + a_{42} * b_{22} & \\ \hline \end{array} \quad A_{22} \times B_{21} = \begin{array}{|c|c|} \hline & a_{33} * b_{31} + a_{34} * b_{41} & a_{33} * b_{32} + a_{34} * b_{42} \\ \hline a_{43} * b_{31} + a_{44} * b_{41} & a_{43} * b_{32} + a_{44} * b_{42} & \\ \hline \end{array}$$

$$A_{21} \times B_{12} = \begin{array}{|c|c|} \hline & a_{31} * b_{13} + a_{32} * b_{23} & a_{31} * b_{14} + a_{32} * b_{24} \\ \hline a_{41} * b_{13} + a_{42} * b_{23} & a_{41} * b_{14} + a_{42} * b_{24} & \\ \hline \end{array} \quad A_{22} \times B_{22} = \begin{array}{|c|c|} \hline & a_{33} * b_{33} + a_{34} * b_{43} & a_{33} * b_{34} + a_{34} * b_{44} \\ \hline a_{43} * b_{33} + a_{44} * b_{43} & a_{43} * b_{34} + a_{44} * b_{44} & \\ \hline \end{array}$$

$A_{11} \times B_{11}$	$a_{11} * b_{11}$	$a_{11} * b_{12}$
$+ A_{12} \times B_{21}$	$+ a_{12} * b_{21}$	$+ a_{12} * b_{22}$
	$+ a_{13} * b_{31}$	$+ a_{13} * b_{32}$
	$+ a_{14} * b_{41}$	$+ a_{14} * b_{42}$
$A_{12} \times B_{21}$	$a_{21} * b_{11}$	$a_{21} * b_{12}$
	$+ a_{22} * b_{21}$	$+ a_{22} * b_{22}$
	$+ a_{23} * b_{31}$	$+ a_{23} * b_{32}$
	$+ a_{24} * b_{41}$	$+ a_{24} * b_{42}$

$A_{11} \times B_{12}$	$a_{11} * b_{13}$	$a_{11} * b_{14}$
$+ A_{12} \times B_{22}$	$+ a_{12} * b_{23}$	$+ a_{12} * b_{24}$
	$+ a_{13} * b_{33}$	$+ a_{13} * b_{34}$
	$+ a_{14} * b_{43}$	$+ a_{14} * b_{44}$
$A_{12} \times B_{22}$	$a_{21} * b_{13}$	$a_{21} * b_{14}$
	$+ a_{22} * b_{23}$	$+ a_{22} * b_{24}$
	$+ a_{23} * b_{33}$	$+ a_{23} * b_{34}$
	$+ a_{24} * b_{43}$	$+ a_{24} * b_{44}$

$A_{21} \times B_{11}$	$a_{31} * b_{11}$	$a_{31} * b_{12}$
$+ A_{22} \times B_{21}$	$+ a_{32} * b_{21}$	$+ a_{32} * b_{22}$
	$+ a_{33} * b_{31}$	$+ a_{33} * b_{32}$
	$+ a_{34} * b_{41}$	$+ a_{34} * b_{42}$
$A_{22} \times B_{21}$	$a_{41} * b_{11}$	$a_{41} * b_{12}$
	$+ a_{42} * b_{21}$	$+ a_{42} * b_{22}$
	$+ a_{43} * b_{31}$	$+ a_{43} * b_{32}$
	$+ a_{44} * b_{41}$	$+ a_{44} * b_{42}$

$A_{21} \times B_{12}$	$a_{31} * b_{13}$	$a_{31} * b_{14}$
$+ A_{22} \times B_{22}$	$+ a_{32} * b_{23}$	$+ a_{32} * b_{24}$
	$+ a_{33} * b_{33}$	$+ a_{33} * b_{34}$
	$+ a_{34} * b_{43}$	$+ a_{34} * b_{44}$
$A_{22} \times B_{22}$	$a_{41} * b_{13}$	$a_{41} * b_{14}$
	$+ a_{42} * b_{23}$	$+ a_{42} * b_{24}$
	$+ a_{43} * b_{33}$	$+ a_{43} * b_{34}$
	$+ a_{44} * b_{43}$	$+ a_{44} * b_{44}$

C =

$a_{11} * b_{11}$ + $a_{12} * b_{21}$ + $a_{13} * b_{31}$ + $a_{14} * b_{41}$	$a_{11} * b_{12}$ + $a_{12} * b_{22}$ + $a_{13} * b_{32}$ + $a_{14} * b_{42}$	$a_{11} * b_{13}$ + $a_{12} * b_{23}$ + $a_{13} * b_{33}$ + $a_{14} * b_{43}$	$a_{11} * b_{14}$ + $a_{12} * b_{24}$ + $a_{13} * b_{34}$ + $a_{14} * b_{44}$
$a_{21} * b_{11}$ + $a_{22} * b_{21}$ + $a_{23} * b_{31}$ + $a_{24} * b_{41}$	$a_{21} * b_{12}$ + $a_{22} * b_{22}$ + $a_{23} * b_{32}$ + $a_{24} * b_{42}$	$a_{21} * b_{13}$ + $a_{22} * b_{23}$ + $a_{23} * b_{33}$ + $a_{24} * b_{43}$	$a_{21} * b_{14}$ + $a_{22} * b_{24}$ + $a_{23} * b_{34}$ + $a_{24} * b_{44}$
$a_{31} * b_{11}$ + $a_{32} * b_{21}$ + $a_{33} * b_{31}$ + $a_{34} * b_{41}$	$a_{31} * b_{12}$ + $a_{32} * b_{22}$ + $a_{33} * b_{32}$ + $a_{34} * b_{42}$	$a_{31} * b_{13}$ + $a_{32} * b_{23}$ + $a_{33} * b_{33}$ + $a_{34} * b_{43}$	$a_{31} * b_{14}$ + $a_{32} * b_{24}$ + $a_{33} * b_{34}$ + $a_{34} * b_{44}$
$a_{41} * b_{11}$ + $a_{42} * b_{21}$ + $a_{43} * b_{31}$ + $a_{44} * b_{41}$	$a_{41} * b_{12}$ + $a_{42} * b_{22}$ + $a_{43} * b_{32}$ + $a_{44} * b_{42}$	$a_{41} * b_{13}$ + $a_{42} * b_{23}$ + $a_{43} * b_{33}$ + $a_{44} * b_{43}$	$a_{41} * b_{14}$ + $a_{42} * b_{24}$ + $a_{43} * b_{34}$ + $a_{44} * b_{44}$