

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

$\times$

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

$A_{11} =$

$a_{11}$	$a_{12}$
$a_{21}$	$a_{22}$

$A_{12} =$

$a_{13}$	$a_{14}$
$a_{23}$	$a_{24}$

$B_{11} =$

$b_{11}$	$b_{12}$
$b_{21}$	$b_{22}$

$B_{12} =$

$b_{13}$	$b_{14}$
$b_{23}$	$b_{24}$

$A_{21} =$

$a_{31}$	$a_{32}$
$a_{41}$	$a_{42}$

$A_{22} =$

$a_{33}$	$a_{34}$
$a_{43}$	$a_{44}$

$B_{21} =$

$b_{31}$	$b_{32}$
$b_{41}$	$b_{42}$

$B_{22} =$

$b_{33}$	$b_{34}$
$b_{43}$	$b_{44}$

$A_{11}$	$A_{12}$
$A_{21}$	$A_{22}$

$\times$

$B_{11}$	$B_{12}$
$B_{21}$	$B_{22}$

$=$

$A_{11}$	$\times$	$B_{11}$	$A_{11}$	$\times$	$B_{12}$
	$+$			$+$	
$A_{12}$	$\times$	$B_{21}$	$A_{12}$	$\times$	$B_{22}$
$A_{21}$	$\times$	$B_{11}$	$A_{21}$	$\times$	$B_{12}$
	$+$			$+$	
$A_{22}$	$\times$	$B_{21}$	$A_{22}$	$\times$	$B_{22}$

$$A_{11} \times B_{11} = \begin{array}{|c|c|} \hline \begin{array}{c} a_{11} * b_{11} \\ + \\ a_{12} * b_{21} \end{array} & \begin{array}{c} a_{11} * b_{12} \\ + \\ a_{12} * b_{22} \end{array} \\ \hline \begin{array}{c} a_{21} * b_{11} \\ + \\ a_{22} * b_{21} \end{array} & \begin{array}{c} a_{21} * b_{12} \\ + \\ a_{22} * b_{22} \end{array} \\ \hline \end{array}$$

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

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

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

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

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

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

$$A_{22} \times B_{22} = \begin{array}{|c|c|} \hline \begin{array}{c} a_{33} * b_{33} \\ + \\ a_{34} * b_{43} \end{array} & \begin{array}{c} a_{33} * b_{34} \\ + \\ a_{34} * b_{44} \end{array} \\ \hline \begin{array}{c} a_{43} * b_{33} \\ + \\ a_{44} * b_{43} \end{array} & \begin{array}{c} a_{43} * b_{34} \\ + \\ a_{44} * b_{44} \end{array} \\ \hline \end{array}$$

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

=

$\begin{matrix} a_{11} * b_{11} \\ + \\ a_{12} * b_{21} \\ + \\ a_{13} * b_{31} \\ + \\ a_{14} * b_{41} \end{matrix}$	$\begin{matrix} a_{11} * b_{12} \\ + \\ a_{12} * b_{22} \\ + \\ a_{13} * b_{32} \\ + \\ a_{14} * b_{42} \end{matrix}$
$\begin{matrix} a_{21} * b_{11} \\ + \\ a_{22} * b_{21} \\ + \\ a_{23} * b_{31} \\ + \\ a_{24} * b_{41} \end{matrix}$	$\begin{matrix} a_{21} * b_{12} \\ + \\ a_{22} * b_{22} \\ + \\ a_{23} * b_{32} \\ + \\ a_{24} * b_{42} \end{matrix}$

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

=

$\begin{matrix} a_{11} * b_{13} \\ + \\ a_{12} * b_{23} \\ + \\ a_{13} * b_{33} \\ + \\ a_{14} * b_{43} \end{matrix}$	$\begin{matrix} a_{11} * b_{14} \\ + \\ a_{12} * b_{24} \\ + \\ a_{13} * b_{34} \\ + \\ a_{14} * b_{44} \end{matrix}$
$\begin{matrix} a_{21} * b_{13} \\ + \\ a_{22} * b_{23} \\ + \\ a_{23} * b_{33} \\ + \\ a_{24} * b_{43} \end{matrix}$	$\begin{matrix} a_{21} * b_{14} \\ + \\ a_{22} * b_{24} \\ + \\ a_{23} * b_{34} \\ + \\ a_{24} * b_{44} \end{matrix}$

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

=

$\begin{matrix} a_{31} * b_{11} \\ + \\ a_{32} * b_{21} \\ + \\ a_{33} * b_{31} \\ + \\ a_{34} * b_{41} \end{matrix}$	$\begin{matrix} a_{31} * b_{12} \\ + \\ a_{32} * b_{22} \\ + \\ a_{33} * b_{32} \\ + \\ a_{34} * b_{42} \end{matrix}$
$\begin{matrix} a_{41} * b_{11} \\ + \\ a_{42} * b_{21} \\ + \\ a_{43} * b_{31} \\ + \\ a_{44} * b_{41} \end{matrix}$	$\begin{matrix} a_{41} * b_{12} \\ + \\ a_{42} * b_{22} \\ + \\ a_{43} * b_{32} \\ + \\ a_{44} * b_{42} \end{matrix}$

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

=

$\begin{matrix} a_{31} * b_{13} \\ + \\ a_{32} * b_{23} \\ + \\ a_{33} * b_{33} \\ + \\ a_{34} * b_{43} \end{matrix}$	$\begin{matrix} a_{31} * b_{14} \\ + \\ a_{32} * b_{24} \\ + \\ a_{33} * b_{34} \\ + \\ a_{34} * b_{44} \end{matrix}$
$\begin{matrix} a_{41} * b_{13} \\ + \\ a_{42} * b_{23} \\ + \\ a_{43} * b_{33} \\ + \\ a_{44} * b_{43} \end{matrix}$	$\begin{matrix} a_{41} * b_{14} \\ + \\ a_{42} * b_{24} \\ + \\ a_{43} * b_{34} \\ + \\ a_{44} * b_{44} \end{matrix}$

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