



$$B = \begin{bmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \end{bmatrix}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \quad \begin{bmatrix} \bullet & & \\ & & \\ & & \bullet \end{bmatrix}$$

The diagram illustrates the dot product of the first row of matrix A with the first column of matrix B . Dashed lines connect the first row of A to the first column of B . The first row of A contains elements a_{11} and a_{12} . The first column of B contains elements b_{11} and b_{21} . The resulting value for the first element of the product vector is $a_{11}b_{11} + a_{12}b_{21}$, represented by a light gray square.

 $a_{11}b_{11} + a_{12}b_{21}$

 $a_{21}b_{13} + a_{22}b_{23}$