

$$\begin{aligned}
A^T &= \begin{pmatrix} 1 & 2 \\ 4 & -1 \\ -3 & 3 \end{pmatrix} \\
B &= \begin{pmatrix} -2 & 0 & 5 \\ 0 & -1 & 4 \end{pmatrix} \\
A^T * B &= \begin{pmatrix} -2 & -2 & 9 \\ -8 & 1 & 16 \\ 6 & -3 & -3 \end{pmatrix} \\
\text{Therefore there rank is } &5
\end{aligned}$$