Step-1

Given that put bases for the orthogonal subspaces **V** and **W** into the columns of matrices V and W, we have explain that why $V^{\perp}W = \text{zero matrix}$, and we have to match this equation with $v^{T}w = 0$ for vectors.

Step-2

The matrices V and W contains orthogonal basis vectors as their columns, so we have

$V^{\perp}W = \text{zero matrix}$.

This makes each basis vector for V orthogonal to each basis vector for W.

Thus every v in V is orthogonal to every w in W, so $v^{T}w = 0$