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# Singular Value Decomposition

In the next section we will be studying the Singular Value Decomposition ([https://en.wikipedia.org/wiki/Singular\\_value\\_decomposition](https://en.wikipedia.org/wiki/Singular_value_decomposition)). Given  $A$ , decompose into

$$A = U\Sigma V^T$$

where  $U$  and  $V$  are *unitary* ([https://en.wikipedia.org/wiki/Unitary\\_matrix](https://en.wikipedia.org/wiki/Unitary_matrix)) and where  $\Sigma$  is a diagonal matrix of *singular values*. These next two questions should refresh your memory from MATH415.