Facts about Hermitian, Unitary, Skew-herimitian, and Normal Matrices, and Others

(1) Every matrix M can be expressed as the sum of a Hermitian matrix and a skew-Hermitian matrix. I.e., we can write $M = \frac{1}{2}(M + M^H) + \frac{1}{2}(M - M^H)$.
(2) A skew-Herimitain matrix is also called antiHermitian.
(3) A real matrix is skew-Hermitian iff it's skew-symmetric.
(4) The real part of every element of the main diagonal of a skew-Hermitian matrix has a zero real part.
(5) Every skew-Hermitian matrix is normal.
(6) $A+Bi$ (A and B are real matrices) is skew-Hermitian iff A is skew-symmetric and B is symmetric.
(7) A real matrix is Hermitian iff it's symmetric.
(8) The main diagonal of a Hermitian matrix is real.
(9) The eigenvalues of a Hermitian matrix are real (but the eigenvectors can be complex).
(10) Eigenvectors of a Hermitian matrix that correspond to different eigenvalues are orthogonal.
(11) Every Hermitian matrix is normal.
(12) $A + Bi$ (A and B are real matrices) is Hermitian iff A is symmetric and B is skew-symmetric.
(13) Every unitary matrix is normal.
(14) If M is unitary, then $\|Mx\|_2 = \|x\|_2$, $\forall x \in \mathbb{C}^n$.
(15) If λ is an eigenvalue of a unitary matrix, then $|\lambda| = 1$.
(16) The columns of a unitary matrix are pairwise orthogonal and the two-norm of each column is 1.
(17) An $n \times n$ matrix is normal iff it has n orthogonal eigenvectors.