$Az = 0z$

4.8.) A is diagonalizable means that $T^{-1}AT = D$ for some nonsingular matrix T and diagonal matrix D

equivalent to $AT = DT$, with all n columns of T linearly independent. which says columns of T are eigen vectors w/ eigen values in D. So A is diagonalizable if and only if, it has a complete set of n linearly independent eigen vectors.