

Symmetric Matrices

1. **True or False** If A is a symmetric, invertible matrix, then $A^{-1} = A^T$.
 - (a) True, and I am very confident
 - (b) True, but I am not very confident
 - (c) False, but I am not very confident
 - (d) False, and I am very confident

2. If A is an $n \times n$ real symmetric matrix, then which of the following is true?
 - (a) Each eigenvalue of A is real.
 - (b) If A is invertible, then its inverse is also symmetric.
 - (c) If $Ax = 2x$ and $Ay = 3y$ then $x \cdot y = 0$.
 - (d) If λ_1 and λ_2 are two different eigenvalues of A and W_1 and W_2 are the corresponding eigenspaces, then W_1 and W_2 are orthogonal sets.
 - (e) All of the above are true.
 - (f) More than one, but not all, of the above are true.