(Easy) Let  $A \in \mathbb{R}^{n \times n}$  be a real symmetric matrix,  $\lambda_i$  is the i-th largest eigenvalue of A. Let X be any invertible matrix in  $\mathbb{R}^{n \times n}$ , prove that the i-th largest eigenvalue of  $B = X^T (A - \lambda_i I) X$  is zero.