Chapter 4 - Section 5

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January 16, 2024

Contents

Exercises

B

Ex. 1

If A is diagonalizable, then $A = P^{-1}DP$ for some diagonal matrix D. It follows

$$A^T = (P^{-1}DP)^T$$
$$= P^T D^T (P^{-1})^T$$
$$= QDQ^{-1}$$

Where we defined $Q = P^T$.

Ex. 2

If A is diagonal, then $A = P^{-1}DP$ for some diagonal matrix D. It follows

$$A^{-1} = (P^{-1}DP)^{-1}$$
$$= P^{-1}D^{-1}P$$
$$= P^{-1}DP$$