Assignment 5

Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$

(a) Find $A + B$.

(b) Find $A - B$.

(c) Find $2A$.

(d) Find $A^T$.

(e) Find the determinant of $A$.

(f) Find the inverse of $A$.

(g) Find the trace of $A$.

(h) Find the characteristic polynomial of $A$.

(i) Find the eigenvalues of $A$.

(j) Find the eigenvectors of $A$.

(k) Find the determinant of $AB$.

(l) Find the inverse of $AB$.

(m) Find the trace of $AB$.

(n) Find the characteristic polynomial of $AB$.

(o) Find the eigenvalues of $AB$.

(p) Find the eigenvectors of $AB$.

(q) Find the determinant of $A^T B$.

(r) Find the inverse of $A^T B$.

(s) Find the trace of $A^T B$.

(t) Find the characteristic polynomial of $A^T B$.

(u) Find the eigenvalues of $A^T B$.

(v) Find the eigenvectors of $A^T B$.