MATB24. Quiz #6, TUT #12

(1) (4 point) In each part, give a complete definition, or mathematical characterization of the word in bold.

(a) The **characteristic polynomial** of a matrix

(2) (5 point) Determine whether the given statement is true or false. Justify your answer.

(a) Suppose v_1 and v_2 are eigenvectors corresponding to distinct eigenvalues λ_1 and λ_2 then v_1 and v_2 are linearly independent.

(3) (6 point) For the following transformation, find an eigenvector using any methods you can think of, including basic geometry, if this is possible. What are the corresponding eigenvalues?

(a) $V = \mathbb{R}^2$, $T =$ rotation by 90°.