

Assignment Title

Name: _____

Date: _____

Instructions

Answer **all** the questions and return to the teacher by the end of the week. Section A questions shouldn't cause you any trouble. Section B is designed to be more challenging.

Section A

1. Define the term 'minimal polynomial'.

2. Evaluate the following integral

$$\int_2^x \sinh 2y \, dy$$

in the case where:

- (a) $x = 5$

- (b) $x = 9$

3. Find the determinant of the following 3x3 matrix:

$$\begin{pmatrix} 1 & 6 & 4 \\ 3 & 1 & 7 \\ 9 & 4 & 5 \end{pmatrix}$$

Section B

1. Determine the following limit:

$$\lim_{x \rightarrow +\infty} \frac{\sin x}{x^2}$$

2. Prove Pythagoras' Theorem.

3. Describe the Gram-Schmidt Algorithm.
