

Quantitative Methods
TEST – Part 1 – 30 points

Name:

1) Calculate intersections with coordinates and draw graph of function $f(x) = 4x - 2$.

5 points

2) Find the domain of the function of one variable:

$$f(x) = \ln(x^2 - 9)$$

5 points

3) Matrices are given $A = \begin{pmatrix} 2 & 3 \\ -1 & 4 \end{pmatrix}$, $B = \begin{pmatrix} 1 & 2 \\ 0 & 5 \end{pmatrix}$. Calculate A^T ; B^{-1} ; $2A$; $X = A - 3B$

5 points

4) Calculate the determinant of matrix and determine if the matrix is singular or non-singular.

$$\begin{pmatrix} -1 & 2 & 3 \\ -2 & 0 & 1 \\ -3 & 2 & 4 \end{pmatrix}$$

5 points

5) The sequence is given $a_n = \frac{2n-1}{n}$. Calculate a_1 ; a_2 ; a_3 ; a_{100} ; $\lim a_n =$

5 points

6) Find the derivatives:

a) $y = x^5 + 4x^3 - 5x + \sin x$

b) $y = \frac{3x+5}{\ln x}$

c) $y = \ln(x^3 + 2x + 1)$

5 points