**Quantitative Methods**

**TEST – Part 1 – 30 points**

Name: …………………………………

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

5 points

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

$f\left(x\right)=ln\left(x^{2}-9\right)$ 5 points

3) Matrices are given $A=\left(\begin{matrix}2&3\\-1&4\end{matrix}\right), B=\left(\begin{matrix}1&2\\0&5\end{matrix}\right)$. 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.

 $\left(\begin{matrix}-1&2&3\\-2&0&1\\-3&2&4\end{matrix}\right)$ 5 points

5) The sequence is given $a\_{n}=\frac{2n-1}{n}$ . Calculate $a\_{1}; a\_{2}; a\_{3}; a\_{100}; lima\_{n}=$

 5 points

6) Find the derivatives:

1. $y=x^{5}+4x^{3}-5x+sinx$
2. $y=\frac{3x+5}{lnx}$
3. $y=ln\left(x^{3}+2x+1\right)$ 5 points