Test 3

Time: 1 hour.

1) Find inverse of $A = \begin{bmatrix} 4 & -2 & 1 \\ 7 & 3 & 0 \\ 2 & 0 & 1 \end{bmatrix}$

- Show calculations
- What is $AA^{-1} = ?$ (7 marks)

(No. marks deducted if calculations are not shown)

2) Given $f(x) = 2x^3 - 30x^2 + 126x + 59$

- Find critical points
- Determine if max, min or inflection
- Carefully state all conditions (7 marks)

3) Prove $f(x) = |x|$ is convex in $(-\infty, \infty)$

- Plot $f(x)$
- Use line segment method (6 marks)