

ECON3120/4120 – Mathematics 2, spring 2007

Problems related to the first lecture

- 1 Let $f(x) = (x^2 - 2x)e^x$.
 - (a) Find $f'(x)$ and $f''(x)$.
 - (b) Find the zeros of f (where $f(x)$ is 0), local extreme points, and inflection points. Sketch the graph.

- 2 Let $g(x) = x - 2 \ln(x + 1)$.
 - (a) Where is g defined?
 - (b) Find $g'(x)$ and $g''(x)$.
 - (c) Find possible extreme points and inflection points. Sketch the graph.

- 3 Where is $h(x, y) = \ln(y - x^2)$ defined?

- 4 Find $\lim_{x \rightarrow 1} \frac{x^4 + 3x^2 - 4}{x^2 - 1}$ in two ways:
 - (i) By polynomial division; (ii) by using l'Hôpital's rule.

Engelsk–norsk gloseliste:

inflection point = vendepunkt
zero of a function = nullpunkt for en funksjon