Universitetet i Oslo
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ECON3120/4120 – Mathematics 2, fall term 06

Problems for the third seminar, 18/9-22/9.

1 Ma I: 10.1.2 (c) and (e). (EMEA: 9.1.4 (c) and (e).)

2 Ma I: 10.6.1 (d). (EMEA: 9.5.1 (d).)

3 Ma I: 10.7.2 (c). (EMEA: 9.6.2 (c).)

4 Problem 63 in the Exam problem booklet.

5 Consider the function f defined by

$$f(x) = x(\ln x)^2, \qquad x > 0$$

(a) Compute $f'(x)$ and $f''(x)$.

(b) Decide where f is increasing and where f is decreasing. Does f have globale extreme points?

(c) Find $\displaystyle\int x(\ln x)^2\, dx$.

Comments: 1, 2, 4(a) and 5 should be relatively straightforward. In 3 you should be bold in choosing a new variable. In the last question in 63(a) you are actually asked about finding the tangent to the curve at $(1, 0)$. 63(b) is important. Start by taking total differentials of each equation. The last part of 63(c) is tricky.

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