

ECON3120/4120 Mathematics 2, spring 2007

Problems for Thursday 25 Jan 2007

1 Find the first-order derivatives of:

- (a) $y = -7e^x$ (b) $y = e^{-3x^2}$ (c) $y = x^2e^{-x}$
(d) $y = e^x \ln(x^2 + 2)$ (e) $y = e^{5x^3}$ (f) $y = 2 - x^4e^{-x}$
(g) $y = (e^x + x^2)^{10}$ (h) $y = \ln(\sqrt{x} + 1)$

2 Find the intervals where the following functions are increasing:

- (a) $y = (\ln x)^2 - 4$ (b) $y = \ln(e^x + e^{-x})$ (c) $y = x - \frac{3}{2} \ln(x^2 + 2)$