

TEST #2 (worth 100 points), MA 125, FALL 2001

Differentiate the functions below. Write the answers in the space provided.

1 (12 pts) $4e^x(x^4 + 3x^3 - 2x - 1)$

2 (11 pts) $\frac{3e^x}{x^5 + 4x^3 + 2}$

3 (11 pts) $x^3 e^{\cos x}$

4 (11 pts) $\frac{x^2}{\tan(\sin x)}$

5 (11 pts) Use implicit differentiation: $\tan x + \sin y = \cos x \sin y$

6 (11 pts) Find an equation of the tangent line to the curve at the given point: $3(x^3 - y^2) = x^3 + y^2$; $(2, 2)$

7 (11 pts) Here $\tan^{-1}$ is arctangent: $\tan^{-1}(x^3)$

8 (11 pts) $\ln|x^4 + x^3|$

9 (11 pts) $\ln(x^2 e^x - x e^{-x})$