THE UNIVERSITY OF CALGARY
DEPARTMENT OF MATHEMATICS AND STATISTICS

MATH 251 - L08

Midterm Examination

Fall 2003

Thursday, October 30, 2003   Duration: Approx. 1 hour and 10 minutes

Show your work.

Total Points = 40

Calculators or notes are not permitted.

Good Luck.

SURNAME	GIVEN NAMES

SIGNATURE	ID NUMBER

[18]   1.   (a) If $y = \dfrac{x-1}{2x^2+3}$ then $\dfrac{dx}{dy}\big|_{x=1} =$ _____ .

(b) If $xy = 4$ then $\dfrac{dy}{dx}\big|_{x=1} =$ _____ .

(c) If $y = \sec(x^2)$ then $\dfrac{dy}{dx}\big|_{x=\frac{\sqrt{\pi}}{2}} =$ _____ .

(d) If $y = \ln(|\sec x|)$ then $\dfrac{dy}{dx} =$ _____ .

(e) If $y = 2^{\sin x}$ then $\dfrac{dy}{dx} =$ _____ .

(f) If $g(x) = \dfrac{1}{x-2}$, $x \neq 2$ and $(f \circ g)(x) = x$ then $f(x) =$

_____ .

(g) If $f(x) = |1 - x^2|$ then $f'(2) =$ _____ .

(h) If $f(x) = \dfrac{2x-3}{x-2}$, $x \neq 2$, the range of f is

_____ .

(i) The local linear approximation of $f(x) = \sqrt{9+x^2}$ at $x_0 = 0$ is

_____ .