

CALCULUS II PROBLEMS (MATH 152)
SPRING 2013
UPDATED ON January 23, 2013

NATHAN REFF

(1) Evaluate the following

(a) $\int_0^1 x \cos(5x^2) dx.$

(b) $\int \frac{x}{(x^2 + 2)^{1/3}} dx.$

(c) $\int \sin(x) \sqrt{\cos(x) + 1} dx.$

(d) $\int \frac{1}{9 + x^2} dx.$

(e) $\int \sec^2(x) e^{\tan(x)} dx.$

(2) Find the average value of each of the following functions over the specified interval:

(a) $f(x) = x^2 + 5$ over $[-1, 6]$.

(b) $g(x) = x\sqrt{x^2 + 2}$ over $[0, 3]$

(c) $h(x) = x^2 e^{x^3}$ over $[1, 2]$.

DIVISION OF MATHEMATICS, ALFRED UNIVERSITY, ALFRED, NY 14802, U.S.A.
E-mail address: `reff@alfred.edu`