

HOMEWORK 9 - MATH 151

DUE DATE: Study the problems to be ready for your final.

INSTRUCTOR: George Voutsadakis

Read each problem **very carefully** before starting to solve it. Two out of the eight problems will be chosen at random and graded. Each problem graded will offer you 5 bonus (extra) points towards your class average. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Evaluate the indefinite integrals:

(a) $\int -4dx$

(b) $\int x^{4/3}dx$

(c) $\int \frac{1}{\sqrt[3]{x^2}}dx$

2. Evaluate the indefinite integrals:

(a) $\int (2x^4 + x^2 - 5)dx$

(b) $\int (\frac{8}{x} - e^{-x})dx$

(c) $\int (\frac{3\sqrt{x}+1}{\sqrt{x}})dx$

3. Use substitution to evaluate the integrals:

(a) $\int x(x^2 - 2)^3dx$

(b) $\int e^{2x^2+1}xdx$

4. Use substitution to evaluate the integrals:

(a) $\int \frac{x}{\sqrt[5]{1-x^2}}dx$

(b) $\int \frac{e^{-x}}{e^{-x}+4}dx$

5. Use the by-parts method to evaluate the integrals:

(a) $\int xe^{-3x}dx$

(b) $\int \frac{\ln x}{x^2}dx$

(c) $\int x^2 \ln(5x)dx$

6. Compute the following definite integrals:

(a) $\int_{-2}^0 (e^x + x^2)dx$

(b) $\int_1^4 \sqrt{x}dx$

(c) $\int_1^e (x + \frac{1}{x})dx$

(d) $\int_2^3 \frac{dx}{x \ln x}$

7. Find the area under the graph of $f(x) = \sqrt[3]{x}$ from -8 to 1 .

8. Find the area under the graph of $f(x) = x^2 - 9$ from 0 to 6 .