

MATH 158 Assignment 1, Spring 2010

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Due Monday January 18th at 5:20 pm.

March 17, 2010

Review of Differentiation

Differentiate the following functions of x .

(a) $2 + x^{-3} + x^3$,

(b) xe^x ,

(c) $\sqrt{1-x^2}$,

(d) $(1 - e^{-x})/(1 + x^2)$,

(e) $\sin(2x + 3) - 2\cos(3x)$ and

(f) $\ln(2 - \cos x)$.

Section 8.1 Antiderivatives

Exercises 4, 16, 27, 28, 43, 44, 48, 62, 76, 77.

Skip integration rules 9–14.

Section 8.2 Integration by Substitution

Exercises 2, 13, 14, 21, 22, 18, 80.

For exercise 80, you should get $N(5) = 6,857.9$. Show your working.

Note, the answer given in the book for exercise 13 is incorrect.

Skip integration rules 15–18.

Section 8.3 Area and the Definite Integral

Exercise 10. Calculate also $\int_0^1 x^3 dx$ to determine the exact area.

Section 8.4 The Fundamental Theorem of Calculus

Exercises 7, 8, 14, 22, 34, 36.

Section 8.5 Evaluating Definite Integrals

Exercises 1, 2, 61, 62, 68, 71, 78.

For exercise 78, you should get 123.8 tons of coal.