

Mathematics 110 — Assignment 8

Reading: Lecture Notes Chapter 7, Sections 7.1 and 7.2

Question 1.

Calculate the following indefinite integrals:

(a) $\int (x^3 + 3x^2 + 2/x) dx.$

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

(c) $\int \sin(x/3) dx.$

(d) $\int e^{-2x} dx.$

Question 2.

The vertical speed of a rocket in meters/sec t secs after lift-off is

$$t + \frac{\sqrt{t}}{80}.$$

How high is it 1 minute after lift-off?

Question 3.

Find the following definite integrals:

(a) $\int_1^2 (x^2 + x^{-1} + 1) dx.$

(b) $\int_0^{\pi/2} \sin x dx.$

(c) $\int_0^1 e^{2x} dx.$