

Senior Seminar

Homework for Chapter 7

Find the roots of the following polynomials:

1. Use inverse fluxions to find the area under the graph of

$$y = 8x^{\frac{3}{2}} - 9x^4 + 1$$

from $x = 0$ to $x = 1/4$. Express as an exact answer.

2. (a) Write out $\sqrt{3} = \sqrt{4 \times 3/4}$ as an infinite series using Newton's idea (write out the first 6 terms).
(b) Evaluate the above series for $\sqrt{3}$ using the first 4 terms (up to and including the term involving x^3). Express as an exact fraction first, then express as an exact decimal (this is possible because the denominator has only 2s).
3. Write out the binomial expansion for the $\sqrt[3]{1-x}$ to 5 terms (up to and including the term involving x^4).