

Homework Assignment 8.

Given Nov 18, due Nov 30.

1. Section 5.2: Problems 34, 36, 38, 39, 46.
2. Section 5.2: In problem 38 and 39, take the uniform partition, rewrite the limit in terms of n and then express c_k in terms of n and k , as we did in class. See if you can still read the result as a definite integral. If you can't, try a few more from problems 35-42.

3. Evaluate

$$\lim_{n \rightarrow \infty} \sum_{k=0}^n \frac{k}{n\sqrt{n}}$$

4. Use the binomial expansion for $(k+1)^5$ to show directly that

$$\lim_{n \rightarrow \infty} \frac{1}{n^5} \sum_{k=1}^n k^4 = \frac{1}{5}$$

5. Section 5.3: Problems 2, 40, 45, 46
6. Is 'The Mean Value Theorem for Definite Integrals' (Theorem 2, page 298) still valid without assuming f to be continuous? Explain.
7. Section 5.4: Problems: 6, 12, 14, 20, 24, 42, 43, 45, 46, 50, 56, 66, 70, 74.
8. Section 5.5: Problems: 12, 14, 24, 36, 37, 45, 50, 54.