Math 113 Study Guide for Test 2

Applications of Derivatives

Curve sketching, including exp and log equations
L'Hopital's rule
Applied max/min problems
Maclaurin and Taylor polynomials

Study Problems: p.263#11,21; p.300#5,41,53; p.319#21; p.347#61; p.684#3a,11,21

Indefinite Integrals

The 19 rules from class
Integration by u-substitution
Integration by Parts

Study Problems: p.371#5,17,29,33,48; p.520#7,9; p.529#23,25,27

Answer: p.371#48. $\frac{2}{5}(4-x)^{5/2} - \frac{8}{3}(4-x)^{3/2} + C$

Definite Integrals

Summation formulas: $\sum_{k=1}^{n} c = cn$, $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$, $\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$
Left and right endpoint approximations of definite integrals
$\int_a^b f(x)\,dx$ using the formal definition (as a limit of Riemann sums)

Study Problems: p.385#41,45; p.423#35,36; p.520#31

Answers: p.423#36. $\frac{2}{3}$

Applications of Definite Integrals

Area between curves

Study Problems: p.448#4,9

Answers: p.448#4. $\frac{10}{3}$

Proof To Know: The Fundamental Theorem of Calculus

Study your notes, homework, and quizzes. Good Luck!