MATH 152

Today

1. Questions/WeBWorK
2. 5.3 The Evaluation Theorem and The Net Change Theorem

Goals:

1. 5.3 The Evaluation Theorem and The Net Change Theorem (Understand the application and use of these theorems)

Where is today's material used?

1. Physics: distance traveled by a particle (among many others)
2. Chemistry: fraction of gas molecules that can participate in a reaction (among many others)
3. Economics: finding total cost given marginal cost (among many others)
4. Any discipline that includes a notion of accumulated change.

5.3: The Evaluation Theorem and The Net Change Theorem

1. An **antiderivative** of a function f on an interval I is any function F such that $F' = f$ on I.
2. **Theorem:** If f is continuous on $[a, b]$ and F is any antiderivative of F on $[a, b]$, then $\int_a^b f(x)dx = F(b) - F(a)$.
3. **Note**: $\int_a^b f(x)dx = \int_a^b f(y)dy = \int_a^b f(t)dt = \cdots$
4. Examples: 5.3, p. 289: 18, 5, 14, 30

Next Time

1. 5.4 The Fundamental Theorem of Calculus
2. Turn in WeBWorK 5.3, Set05-EvaluationThrm: 7, 10, 12