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Math 31A Lecture Notes: U Substitution

Theorem; FTC I: is continuous on .

Theorem; FTC II: is continuous on an open interval . .

Is an antiderivative of , such that

Example 1: Compute the derivative of

Solution:

FTC II

Hence, by Chain Rule

Substitution Method

Recall:

Example 2:

Consider:

Theorem; Substitution Method: If

“”

↓ ↓

Example 3: Compute

Solution: ,

Example 4:

Solution:

Example 5: Compute

Solution:

Example 6: Evaluate

Solution:

Example 7: Evaluate

Solution:

Theorem:

Proof: