IB Math HL 1 21D Fundamental Theorem of Calculus and Definite Integral Name

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| **Antiderivative**If , then  is an antiderivative of **Indefinite Integral** Represents all antiderivatives of  | **Riemann Sum**Sum of n rectanglesapproximating the area under .Sum of infinitely many rectangles of infinitesimal width is the **EXACT area** under  on the interval . |

**Fundamental Theorem of Calculus**

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| If  is continuous with antiderivative , then . |  |
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Example 1)

 a. Use 20 right-hand rectangles to approximate.

Sigma Notation: Rounded to 4 decimal places:

b. Use graphical evidence to evaluate .

 b. Use the FTC to evaluate .

* Proof of FTC (Calculus by Larson and Edwards)



Example 2) By FTC, evaluate the definite integral; .

1.  b. 