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**Sauerheber, Richard D.**

**Mathematical features of the calculus.**

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Summary: The fundamental theorems of the calculus describe the relationships between derivatives and integrals of functions. The value of any function at a particular location is the definite derivative of its integral and the definite integral of its derivative. Thus, any value is the magnitude of the slope of the tangent of its integral at that position, and any two subtracted values are the area under its derivative. The slope formula of secant lines actually is the mean value theorem for the derivative function in addition to representing the well-known Fermat definition of the derivative. The sine and other functions are discussed.

*Classification:* I40 I50 I10

*Keywords:* calculus fundamental theorems; mean value theorem; derivative/integral pairs

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