

QUIZ 9

Key

1. Match the following Riemann Sum Formulas (or rules) to their name.

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|-----------------------|--|
| The Right Riemann Sum | $\frac{\Delta x}{2} [f(x_0) + 2f(x_1) + \dots + 2f(x_{n-1}) + f(x_n)]$ |
| The Left Riemann Sum | $\Delta x [f(x_0) + \dots + f(x_{n-1})]$ |
| The Midpoint Rule | $\Delta x [f(x_1) + \dots + f(x_n)]$ |
| The Trapezoid Rule | $\frac{\Delta x}{3} [f(x_0) + 4f(x_1) + 2f(x_2) + \dots + 2f(x_{n-2}) + 4f(x_{n-1}) + f(x_n)]$ |
| Simpson's Rule | $\Delta x [f(\bar{x}_1) + \dots + f(\bar{x}_n)]$ |

2. Match the following formulas for error bounds to the appropriate Riemann Sum.

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|--------------------|--|
| The Midpoint Rule | $ error \leq \frac{K(b-a)^3}{12n^2}$ |
| The Trapezoid Rule | $ error \leq \frac{K(b-a)^5}{180n^4}$ |
| Simpson's Rule | $ error \leq \frac{K(b-a)^3}{24n^2}$ |