I. Quiz #2-7

1. Formula for rectangle area. \( A = L \cdot W \)

2. Formula for trapezoid area.

3. Justify (2).

4. \[ A = \frac{1}{2} (B + b)h = \frac{B + b}{2} \cdot h \]

3

\[ A_R = B \cdot h \]

\[ A_{\text{Area away from } \frac{h}{2}} = B \cdot h - b \cdot h \]

\[ A_{\text{ta.}} = \frac{1}{2} (B \cdot h - bh) \]

\[ \therefore \text{Area Trap. } A_T = A_R - A_{\text{ta.}} = Bh - \frac{1}{2} (Bh - bh) \]

\[ = Bh - \frac{1}{2} Bh + \frac{1}{2} bh = \frac{1}{2} Bh + \frac{1}{2} bh = \frac{1}{2} h (B + b) \]

II. § 8.7 Numerical Integration, (p. 587)

<table>
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<th>Partition</th>
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<td>[ y = f(x) ]</td>
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\[ n \text{- subintervals of equal width } \Delta x \]

\[ \Delta x = \frac{b - a}{n} \]

\[ x_0 = a, \ x_n = b \]

\[ x_0 = a, \ x_1 = a + \Delta x, \ x_2 = a + 2\Delta x, \ldots, \ x_i = a + i\Delta x, \ldots, \ x_n = a + n\Delta x \]
So \( x_n = a + n \Delta x = a + n \left( \frac{b-a}{n} \right) = a + b - a = b \)

\[ \mathcal{P}_n = \{ x_0, x_1, x_2, \ldots, x_n \} \quad \text{w/} \quad x_{i-1} < x_i \quad i = 1, 2, \ldots, n \]

A partition \( \mathcal{P} \) of \( I = [a, b] \) \( (x_0 = a \land x_n = b) \)

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**END**