

MA205 Lesson 2

Estimation From Raw Data

Tuesday, August 21, 2007

Outline

- 1 From Lesson 1
 - Summation
- 2 Estimation from Raw Data
 - Estimation from Raw Data
 - ListPlot
 - Total Distance vs. Distance from Origin
- 3 Estimation From Functions
 - Look at for tomorrow

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Sigma Notation

- $$\sum_{i=m}^n a_i = a_m + a_{m+1} + a_{m+2} + \dots + a_{n-1} + a_n$$

Sigma Notation

- $\sum_{i=m}^n a_i = a_m + a_{m+1} + a_{m+2} + \dots + a_{n-1} + a_n$
- OR

Sigma Notation

- $\sum_{i=m}^n a_i = a_m + a_{m+1} + a_{m+2} + \dots + a_{n-1} + a_n$
- OR
- $\sum_{i=m}^n f(i) = f(m) + f(m+1) + f(m+2) + \dots + f(n-1) + f(n)$

Sigma Notation

- For 1 and 2 Write the Sum in Expanded Form and find the sum:

- 1.) $\sum_{i=1}^6 \frac{1}{i+1}$

- 2.) $\sum_{i=3}^6 i(i+2)$

- For 3 and 4 Write the sum in sigma notation:

- 3.) $\sqrt{3} + \sqrt{4} + \dots + \sqrt{7}$

- 4.) $\frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \dots + \frac{19}{20}$

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Estimation from Raw Data

- Left End Point Estimations
- Right End Point Estimations

Time(hrs)	0	4	9	12
Speed(mph)	30	55	55	20

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ListPlot

- Mathematica
- Excel

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Total Distance vs. Distance from Origin or Displacement

- The Unladen European Swallow
- The USMA APFT
- The pendulum
- Nascar

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Estimation From a Function

- Look at Stewart, 5.1 again!
- Additional Course Notes
- Stewart 6.1
- Stewart 7.7
- Check out the CD that came with your book
 - Pull the CD out of the sealed envelope
 - Install the CD
 - Check Module for 5.1, 5.2, and 7.7

Interesting Problem

- Consider the function $f(x) = \sin(\sqrt{x})$ from $x = 0$ to $x = 39.5$
- Plot the function on Mathematica
- Estimate the area between the curve and the x axis

Questions