MTH 32 LECTURE NOTES (Ojakian)

Topic 4: Arc Length and Surface Area

OUTLINE
(References: 2.4)

1. Finding the Arclength
2. Finding the Surface Area (after rotating a curve)

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1. Finding ArcLength

   Derive arclength formula using the example: $y = x^2$ from 0 to 2 (just setting up integral).

   PROBLEM 1. *Find the arclength of a straight line segment over an interval: With and without calculus.*

   PROBLEM 2. *From* Textbook, *section 2.4 (page 180): 171*

   PROBLEM 3. *From the* Work Book, *section 21 (page 42): Do problem 2abc (maybe just setup)*

   PROBLEM 4. *From* Textbook, *section 2.4 (page 182): 213 - just discuss the problem.*

2. Finding Surface Area

   Derive arclength formula using the example: $y = x^2$ from 0 to 2 (just setting up integral).

   PROBLEM 5. *Check the formula on a cylinder: i.e. take the line $y = 3$ from $x = 0$ to $x = 2$ and rotate around the x-axis. Find the surface area with and without calculus.*

   PROBLEM 6. *From the* Work Book, *section 22 (page 43), do problems: 5a, 6*