D. Arc Length

This another situation where students can "cheat" if they are familiar with the calculator. There is a built-in feature on the TI-85 for finding arc length -- two, actually.

One is **arc** on the **CALC** menu. If there is a function \( f(x) \) entered in \( y_1 \), the command \( \text{arc}(y_1, x, a, b) \) will return an approximation to the length of the curve from \((a, f(a))\) to \((b, f(b))\).

The second is **ARC** on the **GRAPH/MATH** menu. If the graph of a function is displayed on the graphing screen and **ARC** is selected, you are returned to the graphing screen in **TRACE** mode. Use the cursor to move along the curve to one endpoint of the arc and press **ENTER**. Then move to the other endpoint and press **ENTER**. The arc length is displayed at the bottom of the graphing screen. In both cases accuracy is determined by the value of \( \text{tol} \) and \( \delta \) on the **TOLER** screen.