**Math 76 Assessment 3** §2.4 Arc Length

Things to remember:

1. The problem to complete is shown below. Write your name and solution on the next page where instructed.

2. Please make sure your full name is written neatly in the box.

3. Your score will be determined by **Mechanics** (2 points) and by **Content** (3 points).

4. The following rubric will be used for **Mechanics**:

| | |
|---|---|
| Clear neat work, steps in order and easily followed, proper use of notation | 2 |
| Mostly clear work; minor errors in notation or skipped steps | 1.5 |
| Steps/handwriting hard to follow/read; major errors in notation | 1 |
| No discernible or relevant work, or work impossible to read/follow | 0 |

5. You are not allowed to consult outside sources, including notes, books, the internet, or other people, while taking this assessment. Calculators are allowed only for basic numerical or scientific computations, not for graphing or algebra.

6. If you need more room, you may finish on a plain piece of paper or blank document.

7. When you are finished, create a legible, well-lit **.pdf file** of your work and upload it to Assessment 3 on Gradescope. If prompted, follow the directions to assign the page(s) of your submission that contain your work for the question. More info about submitting to Gradescope:

`http://bit.ly/gradescope-help`

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Consider the curve $f(x)$ shown (next page). The figure is not necessarily to scale.

Find the length of the curve $f(x)$ from the point $A$ to the point $C$. Your answer should be expressed as an integral or sum of integrals in terms of $x$. You should simplify as much as possible, but you do not need to evaluate the integral(s).

Your solution should include:

- (1 point) Statement of strategies and formula(s) used;
- (1 point) Explanation of how strategies and formulas are used to determine arc length;
- (1 point; 0 if no relevant work/explanation) Correct final answer.

**Assessment 3** Full Name:

**Version C**

Follow the directions on the previous page.

The part of the function $f(x)$ from the point $A$ to the point $B$ has formula $y = x^2 - 8x + 15$.

The part of the function $f(x)$ from the point $B$ to the point $C$ has formula $y = e^{(x-6)/6} + 2$.

The points labeled in the figure are as follows:

$A = (0, 15)$

$B = (6, 3)$

$C = (12, e + 2)$