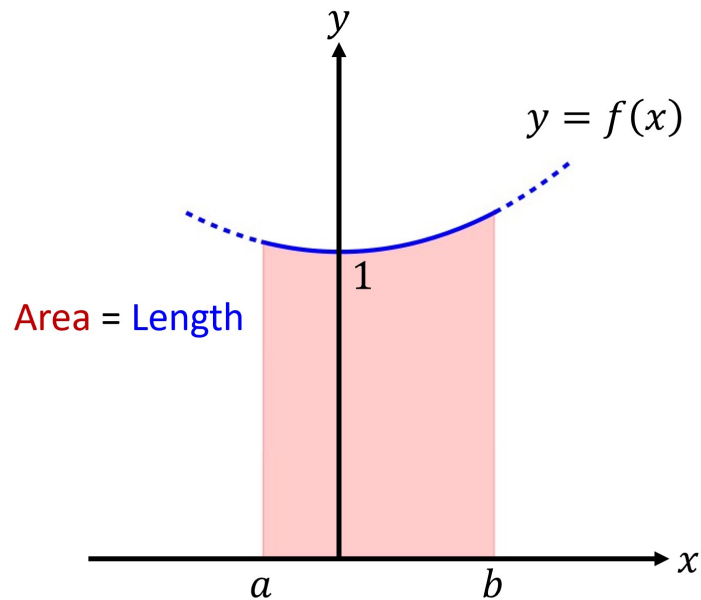


# UC Merced Applied Math Problem of the Month

October 2023



Assume a curve  $y = f(x)$  has an interesting property that the area under this curve is equal to the length of this curve for any interval  $[a, b]$ .

1. If  $f(0) = 1$  and  $f(x)$  is differentiable for all  $x$ , find all  $f(x)$ .
2. What if  $f(0) = c$  and  $f(x)$  is continuous for all  $x$ ? Can you characterize all  $f(x)$ ?

To submit your solutions for a chance to win an Amazon gift card, and to find out detailed contest rules,

- scan the QR code to the right, or
- go to <https://appliedmath.ucmerced.edu/news-events/problem-month>

