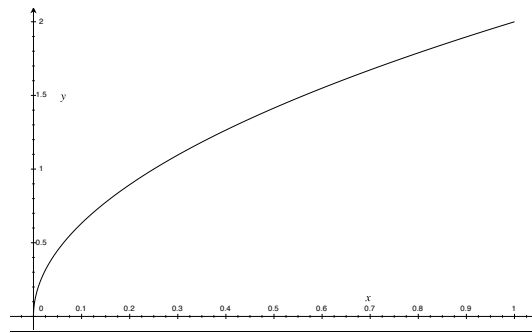


EXTRA CREDIT: 5 POINTS ON QUIZ 3
DUE: TUESDAY, 5/8/2018

Find the arc length of the curve below described by the equation

$$4x = y^2, \quad 0 \leq y \leq 2.$$



This is (assigned) exercise 12 from section §7.4. In my posted solutions, I solved this by considering

$$x = f(y) = \frac{1}{4}y^2, \quad 0 \leq y \leq 2$$

and calculating the arc-length in the usual way.

$$L = \int_0^2 \sqrt{1 + f'(y)^2} \, dy$$

See my posted solutions for more details.

(http://www.johnadamski.com/202/Solutions/JA202_HW7.4.pdf).

This extra credit assignment is to calculate the arc-length of the same curve by considering

$$y = g(x) = 2\sqrt{x}, \quad 0 \leq x \leq 1$$

and calculating the arc-length in the usual way.

$$L = \int_0^1 \sqrt{1 + g'(x)^2} \, dx$$

Things to keep in mind:

- The integral is improper (Why?), so we must use the techniques from section §6.6.
- The integral is difficult. I was unable to solve it on the spot during class. However, you can check your answer with my posted solution, which uses the method described above the break in the page, and which is not the method you are to use on this assignment. The answer is the same, regardless of method.