

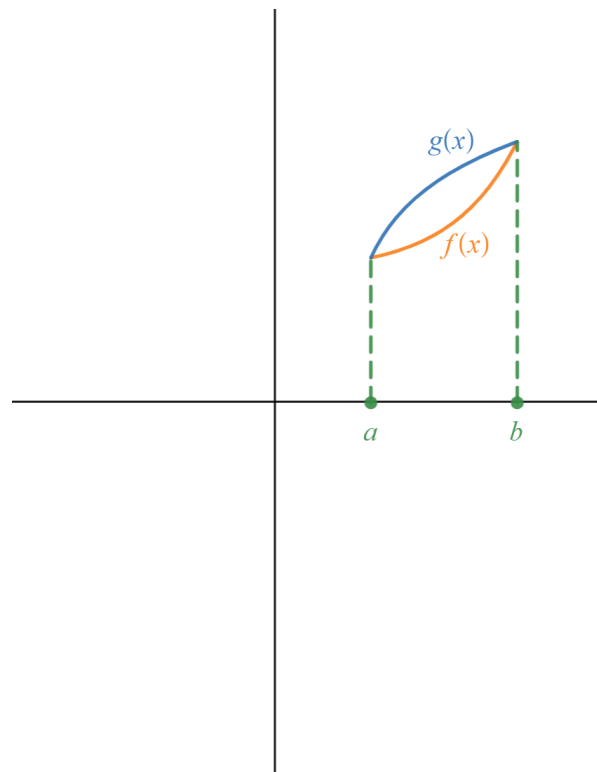
**Part I: none for Monday****Part II: Exercises (prepare for class Monday, January 29)**

Complete the front of the blue Integration by Parts handout. No page turning required. ☺

**Part III: Homework Problems (due Wednesday, January 31 at the beginning of class)**

Review the guidelines and Sample Homework in the syllabus to make sure your Part III solutions follow them.

1. What value of  $a$  makes the length of the catenary curve  $y = \cosh x$  between  $x = -a$  and  $x = a$  equal to 10? Note that you do not need to give a decimal approximation for your answer; answers like  $\cosh^{-1}(98)$  are perfectly fine (and are exact!).
2. Consider the linear function  $x = ay + b$  on the interval  $(c, d)$ , where  $c$  and  $d$  are  $y$ -values. Determine the length of this function using calculus (as in, find its arc length), and then verify your answer using geometry.
3. Suppose each of the functions  $f(x)$  and  $g(x)$  shown in the figure below are revolved around the  $x$ -axis to create two separate solids. Which solid will have a greater surface area? Explain your answer carefully.



## Celebration of Learning Friday, February 2

Just a reminder that Friday, February 2, will be our first full-class-length Celebration of Learning. It will have problems for each of the learning targets we've covered to that point.