8.1 (Slice and Conquer) Area

1. Sketch a graph of the functions to find the enclosed region

2. Sketch a picture of a Riemann slice on your graph.
3. Base of the rectangle? Circle: Δx or Δy
4. Which function is larger in that variable (top for x, right for y)?
5. What is the height of the rectangle (top-bottom or right-left)?
6. What is the Riemann sum approximation? $\sum$ height $\cdot$ base $= \sum$
7. What are the limits of the integral a and b (if not given, algebra finds the intersection points)?

8. Write the integral?

8.1 (Slice and Conquer) Volume

1. Sketch the object you want to find the volume of

2. Sketch a picture of a Riemann slice on your graph

3. What shape is the slice? Circle: box (length$\cdot$width$\cdot$height) or cylinder/disk ($\pi \cdot$ radius$^2\cdot$height)
4. Infinitesimal part of the slice? Circle: Δx or Δy or Δh or Δr
5. To solve for any lengths you need, sketch a diagram and show work.

6. Circle any we used: Pythagorean theorem or similar triangles
7. What is the Riemann sum approximation? $\sum$
8. What is a and b?

9. Write the integral?

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