

Math 102 — Finding areas

Summary. Try each of the following problems together in a small group.

Problem 1. Consider the region between $y = e^{-x}$ and $y = -x^2$ for values of x between 0 and 1.

- Sketch a picture of the region.
- Which is the top curve and which is the bottom curve?
- Set up and compute the integral that represents the area of the region.

Problem 2. Consider the region bounded the curves $y = x^2$ and $y = 8 - x^2$.

- Where do these two curves intersect? That is, for which x -values do we have $x^2 = 8 - x^2$?
- Sketch a picture of the region. Which is the top curve and which is the bottom curve?
- Set up and compute the integral that represents the area of the region.

Problem 3. Consider the bounded region between the x -axis and the graph of $y = x^2 - x$.

- Where does $y = x^2 - x$ intersect the x -axis? That is, for which x -values do we have $x^2 - x = 0$?
- Sketch a picture of the region. Which is the top curve and which is the bottom curve?
- Set up and compute the integral that represents the area of the region.