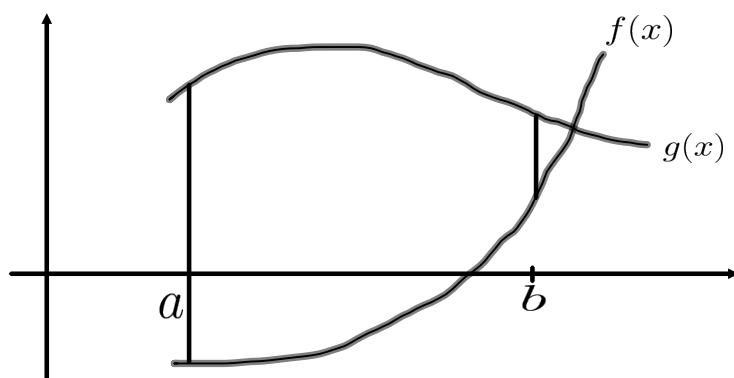


7.1 Areas Between Curves

Suppose you want to find the following area:



Examples: 1) Find the area of the region bounded above by $y = e^x$, below by $y = x$ and bounded on the sides by $x = 0$ and $x = 1$.

2) Find the area of the region enclosed by the curves $y = x^2 - 2x$ and $y = 4 - x^2$.

3) Sketch the region that lies between the curves $y = \cos x$ and $y = \sin 2x$ and between $x = 0$ and $x = \pi/2$.

Some regions are best treated by regarding x as a function of y , that is

$$x = g(y)$$

If a region is bounded by curves with equations $x = f(y)$, $x = g(y)$, $y = c$, and $y = d$, where f and g are continuous and $f(y) \geq g(y)$ on $[c, d]$ then

Example: Find the area enclosed by the line $y = x - 1$ and the curve $y^2 = 2x + 6$.