

## Area Between Curves (6.1)

Area is not Net Area!

Find the **net area** between  $y = \sin(x)$  and  $y = 0$  if  $0 \leq x \leq 2\pi$ .

Find the **area** between  $y = \sin(x)$  and  $y = 0$  if  $0 \leq x \leq 2\pi$ .

Find the area between  $y = e^x$  and  $y = x^{-2}$  if  $1 \leq x \leq e$ . Rule of thumb: subtract net area of smaller function from net area of larger function.

Find the area between  $y = \cos(x)$  and  $y = \sin(2x)$  if  $0 \leq x \leq \frac{\pi}{2}$ .

Ans:  $1/2$

Find the area of the region in the first quadrant bounded by  $y = 0$  and  $y = x^2$  and  $y = 6 - x$ .  
Ans:  $32/3$

Find the area bounded by  $x = y^2 - 6$  and  $x = 12 - y^2$ . You may wish to integrate along the  $y$ -axis.  
Ans: 72

Find the area bounded by  $y = \frac{1}{x}$ ,  $y = x$ , and  $y = \frac{x}{4}$ .

Ans:  $\ln(4)$