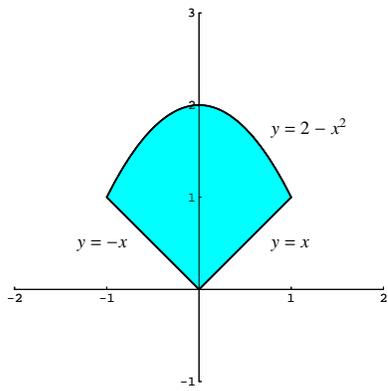
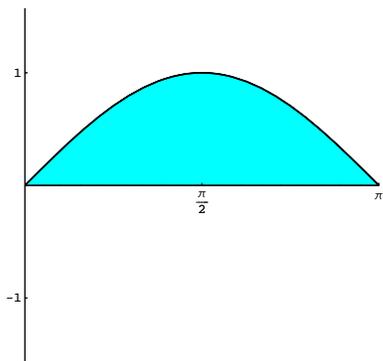


## Area and Volume

1. Find the area of the region shown. (You may leave your answer as an integral or sum/difference of integrals.)



2. Here is one loop of the sine curve.



(a) If you rotate this region about the  $x$ -axis, what shape do you get? What is its volume? (You do not need to evaluate your integral.)

(b) If you rotate the region about the line  $y = -1$ , what shape do you get? What is its volume? (You do not need to evaluate your integral.)