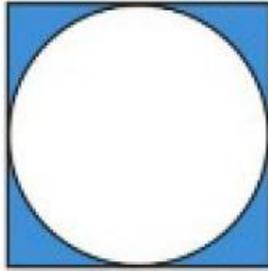Do: find area of the shaded region given:

Know how to add integrals (areas under curve):

ex. sketch then determine area under the curves: $\int_{2}^{6} x\, dx$ $\int_{2}^{6} 2\, dx$

Finding the Area Bound by Multiple Graphs:

$\int_{a}^{b} \left[f(x) - g(x) \right] dx =$

Step 1: determine which function _____

Step 2: determine _____ by finding the functions' _____

Find intersection points by _____

ex. find the area of the region **bound** by the graphs $f(x) = 2x + 1, \ \ g(x) = x^2 + 1$

Do: given $f(x) = x^2$ and $g(x) = 2x - x^2$ determine the intersection points; sketch on the same plane

ex. find area of the enclosed region

Set Up Integrals for Area Between Two Curves

ex. sketch and set up integral for $f(x) = x^2$ and $g(x) = x + 6$

ex. sketch and set up integral for $f(x) = -x^2 + 9$ and $g(x) = x + 3$

Recall: Areas involving Even and Odd Functions

Odd Functions' graphs have _____ symmetry because _____

ex. $\int_{-\pi}^{\pi} \sin x \, dx$

Even Functions' graphs have _____ symmetry because _____

ex. $\int_{-\pi/2}^{\pi/2} \cos x \, dx$