Torus
Rotate about \( x \)-axis.

Volume of Torus =

Volume of rotation of top half of circle - volume of rotating bottom half
What is the function that goes with the red arc?

Top half of a circle with center $(0, R)$ and radius $r$

$(x-0)^2 + (y-R)^2 = r^2$

Red arc is $y = +\sqrt{r^2-x^2} + R$
Bottom line

Volume of rev. about y axis

for $f(x) \geq 0$

$$= \int_a^b 2\pi x f(x) \, dx$$

circ. \hspace{1cm} \text{weight} \hspace{1cm} \text{thickness}$$