Volume Set-up

Region / Rotate around	Type I	Type II
horizontal (x-axis) ($y = k$)	washers $\int_a^b \pi\left(f(x)^2 - g(x)^2\right) dx$ $\uparrow$ x	shells $\int_c^d 2\pi\left(k-y\right)\left(f(y)-g(y)\right) dy$ $\uparrow$ y $\quad$ $\uparrow$ k bigger than region
vertical (y-axis) ($x = k$)	shells $\int_a^b 2\pi\left(k-x\right)\left(f(x)-g(x)\right) dx$ $\uparrow$ x $\quad$ $\uparrow$ k bigger than region.	washers $\int_c^d \pi\left(f(y)^2 - g(y)^2\right) dy$ $\uparrow$ y