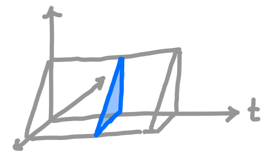
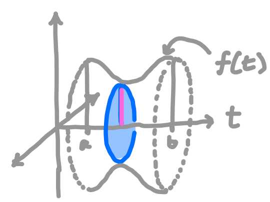
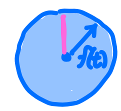
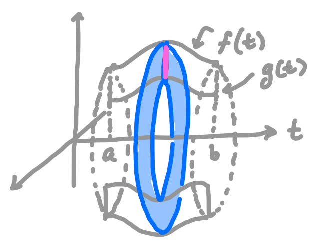
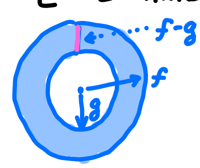
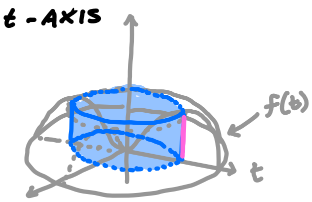
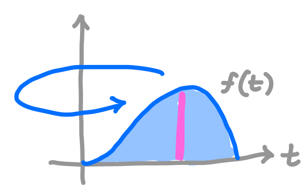
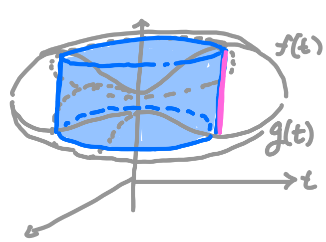
METHOD	FORMULA	CONDITIONS	QUANTITY REPRESENTED BY INTEGRAND	WHEN TO USE
CROSS-SECTION	$\int_a^b A(t)\,dt$	A IS CONTINUOUS ON $a \le t \le b$	AREA OF A CROSS-SECTION PERPENDICULAR TO t-AXIS 	CROSS-SEC. IS TRIANGULAR, SQUARE, ETC. (NOT A DISC OR CYLINDER)
DISC	$\int_a^b \pi f(t)^2\,dt$	f CONTINUOUS ON $a \le t \le b$	AREA OF A CROSS-SECTION PERPENDICULAR TO t-AXIS 	CROSS-SEC. IS A DISC OF RADIUS $f(t)$ REGION BOUNDED BY f & t-AXIS IS REVOLVED @ t-AXIS 
WASHER (SUBTRACTIVE DISC)	$\int_a^b \pi\left(f(t)^2 - g(t)^2\right)dt$	f, g CONT'S ON $a \le t \le b$, $f(t) \ge g(t)$	AREA OF A CROSS-SECTION PERPENDICULAR TO t-AXIS 	CROSS-SEC. IS A DISC OF RADIUS $f(t)$ WITH A HOLE OF RADIUS $g(t)$ REGION BDD. BY f & g IS REVOLVED @ t-AXIS 
SHELL	$\int_a^b 2\pi t\, f(t)\,dt$	f CONT'S ON $a \le t \le b$	SURFACE AREA OF AN OPEN CYLINDER OF RADIUS t AND HEIGHT $f(t)$ PERPENDICULAR TO t-AXIS 	REGION BDD BY f AND t-AXIS IS REVOLVED @ AXIS PERPENDICULAR TO t-AXIS! 
SUBTRACTIVE SHELL	$\int_a^b 2\pi t\left(f(t) - g(t)\right)dt$	f, g CONT'S ON $a \le t \le b$, $f(t) \ge g(t)$	SURFACE AREA OF AN OPEN CYLINDER OF RADIUS t AND HEIGHT $f(t) - g(t)$ PERP. TO t-AXIS 	REGION BDD BY f AND g IS REVOLVED @ AXIS PERPENDICULAR TO t-AXIS!