

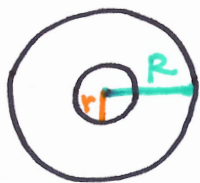
Volumes (Section 8.3)

* Volume: $V = \int_a^b A(x) dx$ ← Area

- * Slicing Method:
- ① Sketch the solid & a typical cross section.
 - ② Find a formula for $A(x)$.
 - ③ Find the limits of integration
 - ④ Integrate!

ex: Revolve $f(x) = 2 + x \cos x$ around the x -axis on $[-2, 2]$.

* Washer Cross Sections: used when there is a hole in the middle of the cross section.



$$\begin{aligned} \text{Area of a washer} &= \pi R^2 - \pi r^2 \\ &= \pi (R^2 - r^2) \end{aligned}$$

ex: Using $y=2x$ & $y=x$, revolve about the x -axis.
(and bounded by $x=2$)

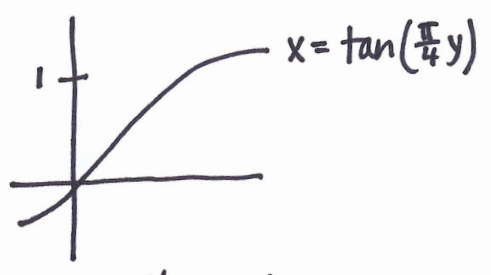
#21 $y = \sec x \cdot \tan x$

$y = \sqrt{2}$

y-axis

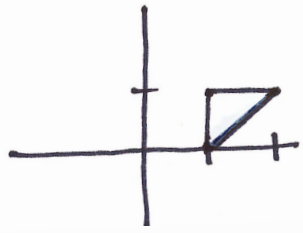
About $y = \sqrt{2}$

#9



about the y-axis

#25 Triangle w/ vertices at (1,0) (2,1) and (1,1) revolved about the y-axis.



#31 $x - y^3 = 0$

$x - y = 0$

