

6.3

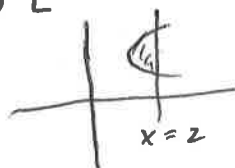
2. Shell has circumference $2\pi x$ and height $\sin(x^2)$.

#5) $\int_0^1 2\pi x e^{-x^2} dx$

#8 $\int_0^1 \pi ((\sqrt{y})^2 - (y^2)^2) dy$

#9) $V = \int_1^3 2\pi y \cdot \frac{1}{y} dy$

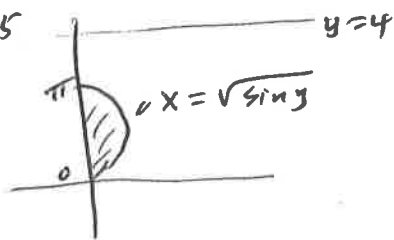
#13) $\int_1^3 2\pi y [2 - (1 + (y-2)^2)] dy$



#17 $V = \int_1^3 2\pi (x-1) [(4x-x^2) - 3] dx$

#19 $V = \int_0^1 2\pi (1-y) (1-y^{1/3}) dy$

#25



$V = \int_0^\pi 2\pi (4-y) \sqrt{\sin y} dy$

#29

$\int_0^3 2\pi x \cdot x^4 dx$
Circum $\nwarrow$ height $\nearrow$

Rotate $0 \leq y \leq x^4$ about y-axis.

Same idea for #30 - pull out a "y" for circumf.

6.3 cont.

39 Washers

$$\int_{-\sqrt{3}}^{\sqrt{3}} \pi \left[(2-0)^2 - (\sqrt{x^2+1}-0)^2 \right] dx$$

#43 Washers

$$\int_0^4 \pi \left[[(y+1)-(-1)]^2 - [(y-1)-(-1)]^2 \right] dy$$

#45 Shells

$$V = 2 \int_0^r 2\pi x \sqrt{r^2-x^2} dx$$