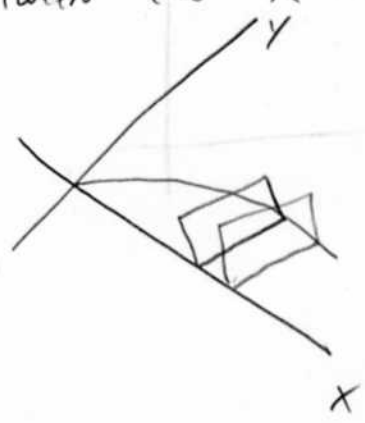


Volumes of Solids with Known Cross Section

$$V = \int_a^b A(x) dx \quad \text{or} \quad \int_a^b A(y) dy$$

Ex A solid is generated by placing ^{the sides of} squares between the x-axis and the function $y = \sqrt{x}$.



From $x = 0$ to $x = 9$

Find the volume of the solid

$$V = \int_a^b A_x dx$$

$$A_x = s^2 \quad \text{for a square}$$

$$s = \sqrt{x} \quad s^2 = x$$

$$A_x = x$$

$$\int_0^9 x dx = \left[\frac{x^2}{2} \right]_0^9 = \boxed{\frac{81}{2}}$$

Ex A solid is formed by placing equal-sized Δ 's perpendicular to the x-axis between

$y = x^2 - 4$ and $y = 4 - x^2$ from $x = -2$ to $x = 2$. Find the volume of the solid

