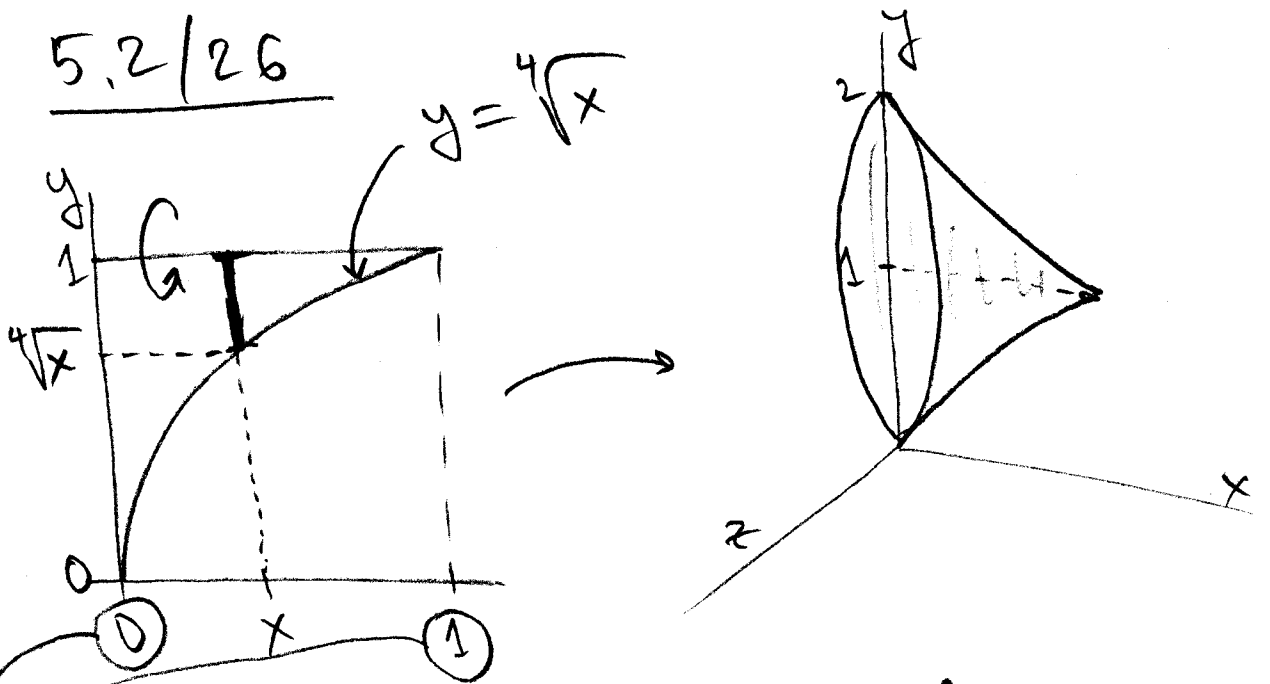


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The cross-section with a plane perpendicular to the x -axis and through the point $(x, 0, 0)$ is a circle with radius $(1 - \sqrt[4]{x})$, therefore

$$A(x) = \pi (1 - \sqrt[4]{x})^2,$$

therefore

$$V = \int_0^1 A(x) dx = \int_0^1 \pi (1 - \sqrt[4]{x})^2 dx$$