

1. Find the total area between the curves $y = x\sqrt{1-x^2}$ and $y = 0$.

2. Sketch and find the area between the curves $y = \sqrt{x+2}$, $y = \frac{x+2}{3}$

3. Find the volume of the solid obtained by rotating the region bounded by $y = \sqrt{x-2}$, $y = 0$ and $x = 6$, about the x -axis.

4. Find the volume of the solid obtained by rotating the region bounded by $x = y^2$ and $x = 3y$ about the y -axis.

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5. Find the volume of the solid obtained by rotating the region bounded by the curve $y = x^3$ and the lines $y = 1$ and $x = 2$ about $y = 3$. (Hint: Draw the region and a typical disk or washer).
6. Find the volume of the solid obtained by rotating the region bounded by the curves $y = \sin x$ and $y = \cos x$ for $0 \leq x \leq \frac{\pi}{4}$ about the y -axis. (Hint: Draw the region and a typical disk or washer)
7. Find the volume of the solid obtained by rotating about the x -axis the region under the curve $y = \sqrt{x}$ from 0 to 1. (Try using cylindrical shells!)