Ws 1 – Volumes of Revolution

Find the volume when the given area is rotated of the x-axis and the y-axis.

1. area enclosed by $y = x$ and $y = \sqrt{x}$.

2. area enclosed by $y = x^2$ and $y = \sqrt{x}$.

3. area enclosed by $y = 3x$, $x = 1$ and $y = 0$.

4. area enclosed by $y = 3x$, $x = 0$ and $y = 3$.

5. area enclosed by $y = x^2$, $y = 0$ and $x = 2$.

6. area enclosed by $y = x^2$, $x = 0$ and $y = 4$.

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Answers

1. $\frac{\pi}{6}, \frac{2\pi}{15}$

2. $\frac{3\pi}{10}, \frac{3\pi}{10}$

3. $3\pi, \ 2\pi$

4. $6\pi, \ \pi$

5. $\frac{32\pi}{5}, \ 8\pi$

6. $\frac{128\pi}{5}, \ 8\pi$