Volume, Part 3 Assignment

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Volume, Part 3 Assignment

Question 0

Watch the lecture video here.

Did you watch the video? [Type yes or no.]

For each question below:

- Draw a graph of the region to be rotated.
- Find the volume of the solid.

Question 1

Use cylindrical shells to find the volume of the solid obtained by rotating around the y-axis the region between $y = (x-1)(x-3)^2$ and the x-axis from $x = 1$ to $x = 3$. [Answer: $\frac{24\pi}{5}$]

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1
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Question 2

Use cylindrical shells to find the volume of the solid obtained by rotating around the y-axis the region between $y = x$ and $y = x^2$ from $x = 0$ to $x = 1$. [Answer: $\frac{\pi}{6}$]

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2
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Question 3

Use cylindrical shells to find the volume of the solid obtained by rotating around the vertical line $x = 2$ the region between $y = x - x^2$ and the x-axis from $x = 0$ to $x = 1$. [Answer: $\frac{\pi}{2}$]

3

Question 4

Use cylindrical shells to find the volume of the solid obtained by rotating around the x-*axis* the region between $y = x$ and $y = x^2$ from $x = 0$ to $x = 1$. [Answer: $\frac{2\pi}{15}$]

Question 5

Use cylindrical shells to find the volume of the solid obtained by rotating around the horizontal line $y = 5$ the region between $y = x + 2$ and $y = \frac{1}{2}x^2 + 2$ from $x = 0$ to $x = 2$. [Answer: $\frac{44\pi}{15}$]