

Calculus 6 3 Part I Cylindrical Shell Method

Lesson 324 | Calculus AB | Cylindrical shells

<https://www.youtube.com/watch?v=FWBflbwm3kl>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Use cylindrical shells to rotate the region under $y=7x$, $0 \leq x \leq 6$, about the y -axis.

02

Use cylindrical shells to rotate the region under $y=3x$, $0 \leq x \leq 4$, about the y -axis.

03

Use cylindrical shells to rotate the region under $y=3x$, $0 \leq x \leq 8$, about the y -axis.

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04

Use cylindrical shells to rotate the region under $y=8x$, $0 \leq x \leq 2$, about the y-axis.

05

Use cylindrical shells to rotate the region under $y=11x$, $0 \leq x \leq 10$, about the y-axis.

06

Use cylindrical shells to rotate the region under $y=4x$, $0 \leq x \leq 8$, about the y-axis.

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01 Use cylindrical shells to rotate the region under $y=7x$, $0 \leq x \leq 6$, about the y -axis.

Shell radius x , height $7x$. $V=2\pi \int [0,6] x(7x) dx = 2\pi [7x^3/3]_0^6 = 1008\pi$.

02 Use cylindrical shells to rotate the region under $y=3x$, $0 \leq x \leq 4$, about the y -axis.

Shell radius x , height $3x$. $V=2\pi \int [0,4] x(3x) dx = 2\pi [3x^3/3]_0^4 = 128\pi$.

03 Use cylindrical shells to rotate the region under $y=3x$, $0 \leq x \leq 8$, about the y -axis.

Shell radius x , height $3x$. $V=2\pi \int [0,8] x(3x) dx = 2\pi [3x^3/3]_0^8 = 1024\pi$.

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04

Use cylindrical shells to rotate the region under $y=8x$, $0 \leq x \leq 2$, about the y -axis.

Shell radius x , height $8x$. $V=2\pi \int [0,2] x(8x) dx = 2\pi [8x^3/3]_0^2 = 128/3\pi$.

05

Use cylindrical shells to rotate the region under $y=11x$, $0 \leq x \leq 10$, about the y -axis.

Shell radius x , height $11x$. $V=2\pi \int [0,10] x(11x) dx = 2\pi [11x^3/3]_0^{10} = 22000/3\pi$.

06

Use cylindrical shells to rotate the region under $y=4x$, $0 \leq x \leq 8$, about the y -axis.

Shell radius x , height $4x$. $V=2\pi \int [0,8] x(4x) dx = 2\pi [4x^3/3]_0^8 = 4096/3\pi$.