

Calculus 6.3 Part III Cylindrical Shell Method

Lesson 312 | Calculus AB | Cylindrical shells

<https://www.youtube.com/watch?v=40rHELvb6r8>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Use cylindrical shells to rotate the region under $y=11x$, $0 \leq x \leq 4$, about the y -axis.

02

Use cylindrical shells to rotate the region under $y=7x$, $0 \leq x \leq 3$, about the y -axis.

03

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

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04

Use cylindrical shells to rotate the region under $y=10x$, $0 \leq x \leq 12$, about the y -axis.

05

Use cylindrical shells to rotate the region under $y=14x$, $0 \leq x \leq 6$, about the y -axis.

06

Use cylindrical shells to rotate the region under $y=9x$, $0 \leq x \leq 11$, about the y -axis.

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01

Use cylindrical shells to rotate the region under $y=11x$, $0 \leq x \leq 4$, about the y -axis.

Shell radius x , height $11x$. $V=2\pi \int [0,4] x(11x) dx = 2\pi [11x^3/3]_0^4 = 1408/3\pi$.

02

Use cylindrical shells to rotate the region under $y=7x$, $0 \leq x \leq 3$, about the y -axis.

Shell radius x , height $7x$. $V=2\pi \int [0,3] x(7x) dx = 2\pi [7x^3/3]_0^3 = 126\pi$.

03

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

Shell radius x , height $8x$. $V=2\pi \int [0,4] x(8x) dx = 2\pi [8x^3/3]_0^4 = 1024/3\pi$.

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04

Use cylindrical shells to rotate the region under $y=10x$, $0 \leq x \leq 12$, about the y -axis.

Shell radius x , height $10x$. $V=2\pi \int [0,12] x(10x) dx = 2\pi [10x^3/3]_0^{12} = 11520\pi$.

05

Use cylindrical shells to rotate the region under $y=14x$, $0 \leq x \leq 6$, about the y -axis.

Shell radius x , height $14x$. $V=2\pi \int [0,6] x(14x) dx = 2\pi [14x^3/3]_0^6 = 2016\pi$.

06

Use cylindrical shells to rotate the region under $y=9x$, $0 \leq x \leq 11$, about the y -axis.

Shell radius x , height $9x$. $V=2\pi \int [0,11] x(9x) dx = 2\pi [9x^3/3]_0^{11} = 7986\pi$.