



Important Formulas of Cylindrical Shell

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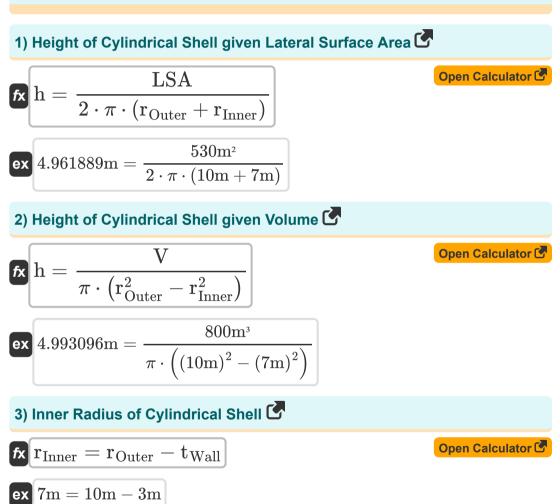
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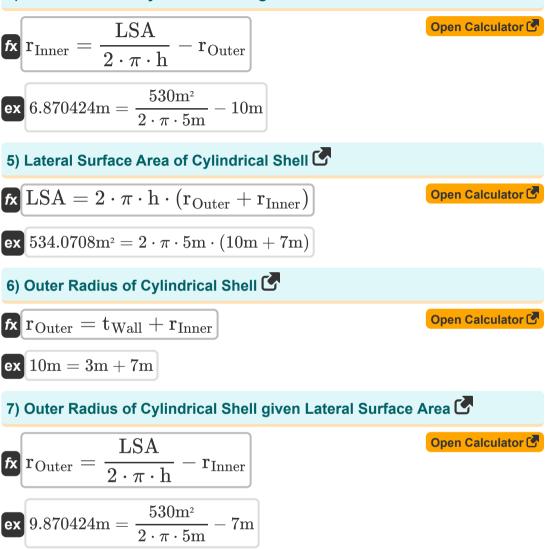
List of 14 Important Formulas of Cylindrical Shell

Important Formulas of Cylindrical Shell 🕑





4) Inner Radius of Cylindrical Shell given Lateral Surface Area 🗹





()

8) Total Surface Area of Cylindrical Shell 🚰

fx Open Calculator
$$\cal{Constraint}$$
 TSA $= 2 \cdot \pi \cdot ({
m r}_{
m Outer} + {
m r}_{
m Inner}) \cdot ({
m r}_{
m Outer} - {
m r}_{
m Inner} + {
m h})$

ex 854.5132m² =
$$2 \cdot \pi \cdot (10m + 7m) \cdot (10m - 7m + 5m)$$

9) Total Surface Area of Cylindrical Shell given Wall Thickness and Outer Radius

$$f_{X} \qquad \text{Open Calculator } \mathfrak{S}$$

$$TSA = 2 \cdot \pi \cdot ((2 \cdot r_{Outer}) - t_{Wall}) \cdot (t_{Wall} + h)$$
ex $854.5132m^{2} = 2 \cdot \pi \cdot ((2 \cdot 10m) - 3m) \cdot (3m + 5m)$
10) Volume of Cylindrical Shell \mathfrak{S}
fx $V = \pi \cdot h \cdot (r_{Outer}^{2} - r_{Inner}^{2})$
fx $801.1061m^{3} = \pi \cdot 5m \cdot ((10m)^{2} - (7m)^{2})$
11) Volume of Cylindrical Shell given Wall Thickness and Inner Radius fx $V = \pi \cdot h \cdot ((t_{Wall} + r_{Inner})^{2} - r_{Inner}^{2})$
fx $V = \pi \cdot h \cdot ((t_{Wall} + r_{Inner})^{2} - r_{Inner}^{2})$
(open Calculator \mathfrak{S}
fx $V = \pi \cdot h \cdot ((t_{Wall} + r_{Inner})^{2} - (7m)^{2})$





12) Volume of Cylindrical Shell given Wall Thickness and Outer Radius

$$f \times V = \pi \cdot h \cdot \left(r_{Outer}^2 - (r_{Outer} - t_{Wall})^2\right)$$

$$e \times 801.1061 \text{m}^3 = \pi \cdot 5 \text{m} \cdot \left((10 \text{m})^2 - (10 \text{m} - 3 \text{m})^2\right)$$

$$13) \text{ Wall Thickness of Cylindrical Shell }$$

$$f \times t_{Wall} = r_{Outer} - r_{Inner}$$

$$e \times 3 \text{m} = 10 \text{m} - 7 \text{m}$$

$$14) \text{ Wall Thickness of Cylindrical Shell given Volume and Inner Radius }$$

$$f \times t_{Wall} = \sqrt{\frac{V}{\pi \cdot h} + r_{Inner}^2 - r_{Inner}}$$

$$e \times 2.996478 \text{m} = \sqrt{\frac{800 \text{m}^3}{\pi \cdot 5 \text{m}} + (7 \text{m})^2 - 7 \text{m}}$$





Variables Used

- **h** Height of Cylindrical Shell (Meter)
- LSA Lateral Surface Area of Cylindrical Shell (Square Meter)
- **r**Inner Radius of Cylindrical Shell (Meter)
- **r**Outer Radius of Cylindrical Shell (Meter)
- twall Wall Thickness of Cylindrical Shell (Meter)
- TSA Total Surface Area of Cylindrical Shell (Square Meter)
- V Volume of Cylindrical Shell (Cubic Meter)



Constants, Functions, Measurements used

- Constant: pi, 3.14159265358979323846264338327950288 Archimedes' constant
- Function: **sqrt**, sqrt(Number) Square root function
- Measurement: Length in Meter (m) Length Unit Conversion
- Measurement: Volume in Cubic Meter (m³) Volume Unit Conversion
- Measurement: Area in Square Meter (m²) Area Unit Conversion

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- Skewed Three Edged Prism
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- Spherical Ring Formulas
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- Spherical Segment Formulas G
- Spherical Wedge Formulas G

Square Pillar Formulas C

- 🔹 Star Pyramid Formulas 🖸
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- Toroid Formulas
- Torus Formulas G
- Trirectangular Tetrahedron
 Formulas
- Truncated Rhombohedron
 Formulas

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