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Important Formulas of Hollow Cylinder

Calculators! Examples! Conversions!

List of 16 Important Formulas of Hollow Cylinder

Important Formulas of Hollow Cylinder

Height of Hollow Cylinder

1) Height of Hollow Cylinder

Open Calculator

fx $$h = \frac{CSA_{Inner}}{2 \cdot \pi \cdot r_{Inner}}$$

ex $$7.957747m = \frac{300m^2}{2 \cdot \pi \cdot 6m}$$

2) Height of Hollow Cylinder given Total Surface Area

Open Calculator

fx $$h = \frac{TSA}{2 \cdot \pi \cdot (r_{Inner} + r_{Outer})} - r_{Outer} + r_{Inner}$$

ex $$7.936621m = \frac{1200m^2}{2 \cdot \pi \cdot (6m + 10m)} - 10m + 6m$$

3) Height of Hollow Cylinder given Volume

Open Calculator

fx $$h = \frac{V}{\pi \cdot \left(r_{Outer}^2 - r_{Inner}^2\right)}$$

ex $$7.957747m = \frac{1600m^3}{\pi \cdot \left((10m)^2 - (6m)^2\right)}$$

Radius of Hollow Cylinder

4) Inner Radius of Hollow Cylinder

Open Calculator

fx $$r_{Inner} = \frac{CSA_{Inner}}{2 \cdot \pi \cdot h}$$

ex $$5.96831m = \frac{300m^2}{2 \cdot \pi \cdot 8m}$$

5) Outer Radius of Hollow Cylinder

Open Calculator

fx $$r_{Outer} = \frac{CSA_{Outer}}{2 \cdot \pi \cdot h}$$

ex $$9.947184m = \frac{500m^2}{2 \cdot \pi \cdot 8m}$$

Surface Area of Hollow Cylinder

6) Inner Curved Surface Area of Hollow Cylinder

Open Calculator

fx $$CSA_{Inner} = 2 \cdot \pi \cdot r_{Inner} \cdot h$$

ex $$301.5929m^2 = 2 \cdot \pi \cdot 6m \cdot 8m$$

7) Outer Curved Surface Area of Hollow Cylinder

Open Calculator

fx $$CSA_{Outer} = 2 \cdot \pi \cdot r_{Outer} \cdot h$$

ex $$502.6548m^2 = 2 \cdot \pi \cdot 10m \cdot 8m$$

8) Total Curved Surface Area of Hollow Cylinder

Open Calculator

fx $\mathrm{CSA_{Total}} = 2 \cdot \pi \cdot \mathrm{h} \cdot (\mathrm{r_{Inner}} + \mathrm{r_{Outer}})$

ex $804.2477\mathrm{m^2} = 2 \cdot \pi \cdot 8\mathrm{m} \cdot (6\mathrm{m} + 10\mathrm{m})$

9) Total Surface Area of Hollow Cylinder

Open Calculator

fx $\mathrm{TSA} = 2 \cdot \pi \cdot (\mathrm{r_{Inner}} + \mathrm{r_{Outer}}) \cdot (\mathrm{r_{Outer}} - \mathrm{r_{Inner}} + \mathrm{h})$

ex $1206.372\mathrm{m^2} = 2 \cdot \pi \cdot (6\mathrm{m} + 10\mathrm{m}) \cdot (10\mathrm{m} - 6\mathrm{m} + 8\mathrm{m})$

10) Total Surface Area of Hollow Cylinder given Wall Thickness and Inner Radius

Open Calculator

fx $\mathrm{TSA} = 2 \cdot \pi \cdot (\mathrm{t_{Wall}} + (2 \cdot \mathrm{r_{Inner}})) \cdot (\mathrm{t_{Wall}} + \mathrm{h})$

ex $1206.372\mathrm{m^2} = 2 \cdot \pi \cdot (4\mathrm{m} + (2 \cdot 6\mathrm{m})) \cdot (4\mathrm{m} + 8\mathrm{m})$

Volume of Hollow Cylinder

11) Volume of Hollow Cylinder

Open Calculator

fx $\mathrm{V} = \pi \cdot \mathrm{h} \cdot (\mathrm{r_{Outer}^2} - \mathrm{r_{Inner}^2})$

ex $1608.495\mathrm{m^3} = \pi \cdot 8\mathrm{m} \cdot \left((10\mathrm{m})^2 - (6\mathrm{m})^2\right)$

12) Volume of Hollow Cylinder given Total Surface Area

Open Calculator

fx $$\mathrm{V} = \pi \cdot \left(\frac{\mathrm{TSA}}{2 \cdot \pi \cdot (\mathrm{r_{Inner}} + \mathrm{r_{Outer}})} - \mathrm{r_{Outer}} + \mathrm{r_{Inner}}\right) \cdot (\mathrm{r_{Outer}^2} - \mathrm{r_{Inner}^2})$$

ex $$1595.752\mathrm{m^3} = \pi \cdot \left(\frac{1200\mathrm{m^2}}{2 \cdot \pi \cdot (6\mathrm{m} + 10\mathrm{m})} - 10\mathrm{m} + 6\mathrm{m}\right) \cdot \left((10\mathrm{m})^2 - (6\mathrm{m})^2\right)$$

13) Volume of Hollow Cylinder given Wall Thickness and Outer Radius

Open Calculator

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

ex $1608.495\text{m}^3 = \pi \cdot 8\text{m} \cdot \left((10\text{m})^2 - (10\text{m} - 4\text{m})^2 \right)$

Wall Thickness of Hollow Cylinder

14) Wall Thickness of Hollow Cylinder

Open Calculator

fx $t_{Wall} = r_{Outer} - r_{Inner}$

ex $4\text{m} = 10\text{m} - 6\text{m}$

15) Wall Thickness of Hollow Cylinder given Total Curved Surface Area and Inner Radius

Open Calculator

fx $t_{Wall} = \frac{CSA_{Total}}{2 \cdot \pi \cdot h} - (2 \cdot r_{Inner})$

ex $3.915494\text{m} = \frac{800\text{m}^2}{2 \cdot \pi \cdot 8\text{m}} - (2 \cdot 6\text{m})$

16) Wall Thickness of Hollow Cylinder given Volume and Inner Radius

Open Calculator

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

ex $3.983085\text{m} = \sqrt{\frac{1600\text{m}^3}{\pi \cdot 8\text{m}} + (6\text{m})^2} - 6\text{m}$

Variables Used

- **CSA_{Inner}** Inner Curved Surface Area of Hollow Cylinder *(Square Meter)*
- **CSA_{Outer}** Outer Curved Surface Area of Hollow Cylinder *(Square Meter)*
- **CSA_{Total}** Total Curved Surface Area of Hollow Cylinder *(Square Meter)*
- **h** Height of Hollow Cylinder *(Meter)*
- **r_{Inner}** Inner Radius of Hollow Cylinder *(Meter)*
- **r_{Outer}** Outer Radius of Hollow Cylinder *(Meter)*
- **t_{Wall}** Wall Thickness of Hollow Cylinder *(Meter)*
- **TSA** Total Surface Area of Hollow Cylinder *(Square Meter)*
- **V** Volume of Hollow Cylinder *(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

Check other formula lists

- Anticube Formulas
- Antiprism Formulas
- Barrel Formulas
- Bent Cuboid Formulas
- Bicone Formulas
- Capsule Formulas
- Circular Hyperboloid Formulas
- Cuboctahedron Formulas
- Cut Cylinder Formulas
- Cut Cylindrical Shell Formulas
- Cylinder Formulas
- Cylindrical Shell Formulas
- Diagonally Halved Cylinder Formulas
- Disphenoid Formulas
- Double Calotte Formulas
- Double Point Formulas
- Ellipsoid Formulas
- Elliptic Cylinder Formulas
- Elongated Dodecahedron Formulas
- Flat End Cylinder Formulas
- Frustum of Cone Formulas
- Great Dodecahedron Formulas
- Great Icosahedron Formulas
- Great Stellated Dodecahedron Formulas
- Half Cylinder Formulas
- Half Tetrahedron Formulas
- Hemisphere Formulas
- Hollow Cuboid Formulas
- Hollow Cylinder Formulas
- Hollow Frustum Formulas
- Hollow Hemisphere Formulas
- Hollow Pyramid Formulas
- Hollow Sphere Formulas
- Ingot Formulas
- Obelisk Formulas
- Oblique Cylinder Formulas
- Oblique Prism Formulas
- Obtuse Edged Cuboid Formulas
- Oloid Formulas
- Paraboloid Formulas
- Parallelepiped Formulas
- Prismatoid Formulas
- Ramp Formulas
- Regular Bipyramid Formulas
- Rhombohedron Formulas
- Right Wedge Formulas
- Semi Ellipsoid Formulas
- Sharp Bent Cylinder Formulas
- Skewed Three Edged Prism Formulas
- Small Stellated Dodecahedron Formulas
- Solid of Revolution Formulas
- Sphere Formulas
- Spherical Cap Formulas
- Spherical Corner Formulas
- Spherical Ring Formulas
- Spherical Sector Formulas
- Spherical Segment Formulas

- **Spherical Wedge Formulas**
- **Spherical Zone Formulas**
- **Square Pillar Formulas**
- **Star Pyramid Formulas**
- **Stellated Octahedron Formulas**
- **Toroid Formulas**
- **Torus Formulas**
- **Trirectangular Tetrahedron Formulas**
- **Truncated Rhombohedron Formulas**

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