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Important Formulas of Elliptic Cylinder

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List of 13 Important Formulas of Elliptic Cylinder

Important Formulas of Elliptic Cylinder

1) Height of Elliptic Cylinder

Open Calculator

fx $$h = \frac{LSA}{\pi \cdot (b + a)}$$

ex $$5.039907\text{m} = \frac{95\text{m}^2}{\pi \cdot (2\text{m} + 4\text{m})}$$

2) Height of Elliptic Cylinder given Volume

Open Calculator

fx $$h = \frac{V}{\pi \cdot b \cdot a}$$

ex $$4.973592\text{m} = \frac{125\text{m}^3}{\pi \cdot 2\text{m} \cdot 4\text{m}}$$

3) Lateral Surface Area of Elliptic Cylinder

Open Calculator

fx $$LSA = \pi \cdot (b + a) \cdot h$$

ex $$94.24778\text{m}^2 = \pi \cdot (2\text{m} + 4\text{m}) \cdot 5\text{m}$$

4) Lateral Surface Area of Elliptic Cylinder given Volume

Open Calculator

fx $$\mathrm{LSA} = \pi \cdot (\mathrm{b} + \mathrm{a}) \cdot \frac{\mathrm{V}}{\pi \cdot \mathrm{b} \cdot \mathrm{a}}$$

ex $$93.75\mathrm{m}^2 = \pi \cdot (2\mathrm{m} + 4\mathrm{m}) \cdot \frac{125\mathrm{m}^3}{\pi \cdot 2\mathrm{m} \cdot 4\mathrm{m}}$$

5) Semi Major Axis of Elliptic Cylinder given Volume

Open Calculator

fx $$\mathrm{a} = \frac{\mathrm{V}}{\pi \cdot \mathrm{h} \cdot \mathrm{b}}$$

ex $$3.978874\mathrm{m} = \frac{125\mathrm{m}^3}{\pi \cdot 5\mathrm{m} \cdot 2\mathrm{m}}$$

6) Semi Minor Axis of Elliptic Cylinder given Volume

Open Calculator

fx $$\mathrm{b} = \frac{\mathrm{V}}{\pi \cdot \mathrm{h} \cdot \mathrm{a}}$$

ex $$1.989437\mathrm{m} = \frac{125\mathrm{m}^3}{\pi \cdot 5\mathrm{m} \cdot 4\mathrm{m}}$$

7) Surface to Volume Ratio of Elliptic Cylinder

Open Calculator

fx $$\mathrm{R_{A/V}} = \frac{\mathrm{LSA} + (2 \cdot \pi \cdot \mathrm{b} \cdot \mathrm{a})}{\pi \cdot \mathrm{h} \cdot \mathrm{b} \cdot \mathrm{a}}$$

ex $$1.155986\mathrm{m}^{-1} = \frac{95\mathrm{m}^2 + (2 \cdot \pi \cdot 2\mathrm{m} \cdot 4\mathrm{m})}{\pi \cdot 5\mathrm{m} \cdot 2\mathrm{m} \cdot 4\mathrm{m}}$$

8) Surface to Volume Ratio of Elliptic Cylinder given Lateral Surface Area and Semi Major Axis

Open Calculator

fx $$R_{A/V} = \frac{LSA + \left(2 \cdot \pi \cdot \left(\frac{LSA}{\pi \cdot h} - a\right) \cdot a\right)}{\pi \cdot h \cdot \left(\frac{LSA}{\pi \cdot h} - a\right) \cdot a}$$

ex $$1.138308\text{m}^{-1} = \frac{95\text{m}^2 + \left(2 \cdot \pi \cdot \left(\frac{95\text{m}^2}{\pi \cdot 5\text{m}} - 4\text{m}\right) \cdot 4\text{m}\right)}{\pi \cdot 5\text{m} \cdot \left(\frac{95\text{m}^2}{\pi \cdot 5\text{m}} - 4\text{m}\right) \cdot 4\text{m}}$$

9) Surface to Volume Ratio of Elliptic Cylinder given Volume and Semi Minor Axis

Open Calculator

fx $$R_{A/V} = \frac{LSA + \frac{2 \cdot V}{h}}{V}$$

ex $$1.16\text{m}^{-1} = \frac{95\text{m}^2 + \frac{2 \cdot 125\text{m}^3}{5\text{m}}}{125\text{m}^3}$$

10) Total Surface Area of Elliptic Cylinder

Open Calculator

fx $$TSA = \pi \cdot (((b + a) \cdot h) + (2 \cdot b \cdot a))$$

ex $$144.5133\text{m}^2 = \pi \cdot (((2\text{m} + 4\text{m}) \cdot 5\text{m}) + (2 \cdot 2\text{m} \cdot 4\text{m}))$$

11) Total Surface Area of Elliptic Cylinder given Lateral Surface Area

Open Calculator

fx $$TSA = LSA + (2 \cdot \pi \cdot b \cdot a)$$

ex $$145.2655\text{m}^2 = 95\text{m}^2 + (2 \cdot \pi \cdot 2\text{m} \cdot 4\text{m})$$

12) Volume of Elliptic Cylinder

Open Calculator

fx $$V = \pi \cdot h \cdot b \cdot a$$

ex $$125.6637\text{m}^3 = \pi \cdot 5\text{m} \cdot 2\text{m} \cdot 4\text{m}$$

13) Volume of Elliptic Cylinder given Lateral Surface Area and Semi Major Axis

Open Calculator

fx $$V = \pi \cdot h \cdot a \cdot \left(\frac{LSA}{\pi \cdot h} - a\right)$$

ex $$128.6726\text{m}^3 = \pi \cdot 5\text{m} \cdot 4\text{m} \cdot \left(\frac{95\text{m}^2}{\pi \cdot 5\text{m}} - 4\text{m}\right)$$

Variables Used

- **a** Semi Major Axis of Elliptic Cylinder *(Meter)*
- **b** Semi Minor Axis of Elliptic Cylinder *(Meter)*
- **h** Height of Elliptic Cylinder *(Meter)*
- **LSA** Lateral Surface Area of Elliptic Cylinder *(Square Meter)*
- $R_{A/V}$ Surface to Volume Ratio of Elliptic Cylinder *(1 per Meter)*
- **TSA** Total Surface Area of Elliptic Cylinder *(Square Meter)*
- **V** Volume of Elliptic Cylinder *(Cubic Meter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Volume** in Cubic Meter (m^3)
  Volume Unit Conversion
- Measurement: **Area** in Square Meter (m^2)
  Area Unit Conversion
- Measurement: **Reciprocal Length** in 1 per Meter (m^{-1})
  Reciprocal Length Unit Conversion

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- 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
- 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
- Square Pillar Formulas
- Star Pyramid Formulas
- Stellated Octahedron Formulas
- Toroid Formulas
- Torus Formulas
- Trirectangular Tetrahedron Formulas
- Truncated Rhombohedron Formulas

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