



Capsule Formulas

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Conversions!

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List of 16 Capsule Formulas

Capsule 🗗

Cylinder Height of Capsule 🗗

1) Cylinder Height of Capsule

fx
$$m h_{Cylinder} = l - (2 \cdot r_{Sphere})$$

Open Calculator

2) Cylinder Height of Capsule given Sphere Radius and Surface Area

$$ag{h_{ ext{Cylinder}} = rac{ ext{TSA}}{2 \cdot \pi \cdot ext{r}_{ ext{Sphere}}} - (2 \cdot ext{r}_{ ext{Sphere}})}$$

Open Calculator

$$oxed{ex} 10.05352 \mathrm{m} = rac{630 \mathrm{m}^2}{2 \cdot \pi \cdot 5 \mathrm{m}} - (2 \cdot 5 \mathrm{m})$$

3) Cylinder Height of Capsule given Sphere Radius and Volume

$$\mathbf{f}_{\mathrm{Cylinder}} = rac{\mathrm{V}}{\pi \cdot \mathrm{r}_{\mathrm{Sphere}}^2} - rac{4 \cdot \mathrm{r}_{\mathrm{Sphere}}}{3}$$

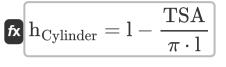
Open Calculator

$$extbf{ex} 10.01277 ext{m} = rac{1310 ext{m}^3}{\pi \cdot (5 ext{m})^2} - rac{4 \cdot 5 ext{m}}{3}$$





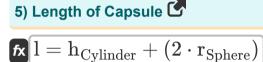
4) Cylinder Height of Capsule given Surface Area and Length



Open Calculator 🗗

 $9.973239 \mathrm{m} = 20 \mathrm{m} - rac{630 \mathrm{m}^2}{\pi \cdot 20 \mathrm{m}}$

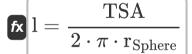
Length of Capsule



Open Calculator

 $\texttt{ex} \ 20 \texttt{m} = 10 \texttt{m} + (2 \cdot 5 \texttt{m})$

6) Length of Capsule given Surface Area and Sphere Radius



Open Calculator 🚰

 $\mathbf{ex} \ 20.05352 \mathrm{m} = rac{630 \mathrm{m}^2}{2 \cdot \pi \cdot 5 \mathrm{m}}$

7) Length of Capsule given Volume and Sphere Radius

$$1 = rac{
m V}{\pi \cdot
m r_{Sphere}^2} + rac{2 \cdot
m r_{Sphere}}{3}$$

Open Calculator 🗗

 $extbf{ex} 20.01277 ext{m} = rac{1310 ext{m}^3}{\pi \cdot \left(5 ext{m}
ight)^2} + rac{2 \cdot 5 ext{m}}{3}$







Sphere Radius of Capsule 🗗

8) Sphere Radius of Capsule 🛂

$$\mathbf{f}_{\mathrm{Sphere}} = rac{1 - \mathrm{h}_{\mathrm{Cylinder}}}{2}$$

Open Calculator 🚰

$$\boxed{\mathbf{ex}} 5\mathbf{m} = \frac{20\mathbf{m} - 10\mathbf{m}}{2}$$

9) Sphere Radius of Capsule given Surface Area and Length

$$\mathbf{r}_{\mathrm{Sphere}} = rac{\mathrm{TSA}}{2 \cdot \pi \cdot 1}$$

Open Calculator

$$= \frac{630 \text{m}^2}{2 \cdot \pi \cdot 20 \text{m}}$$

Surface Area of Capsule

Total Surface Area of Capsule

10) Surface Area of Capsule 🗗

Open Calculator

$$ext{TSA} = (2 \cdot \pi \cdot ext{r}_{ ext{Sphere}}) \cdot ((2 \cdot ext{r}_{ ext{Sphere}}) + ext{h}_{ ext{Cylinder}})$$

$$oxed{ex} 628.3185 \mathrm{m}^2 = (2 \cdot \pi \cdot 5 \mathrm{m}) \cdot ((2 \cdot 5 \mathrm{m}) + 10 \mathrm{m})$$



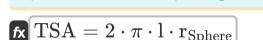
11) Surface Area of Capsule given Length and Cylinder Height

 $ag{TSA} = \pi \cdot l \cdot (l - ext{h}_{ ext{Cylinder}})$

Open Calculator 🗗

ex $628.3185 \mathrm{m}^2 = \pi \cdot 20 \mathrm{m} \cdot (20 \mathrm{m} - 10 \mathrm{m})$

12) Surface Area of Capsule given Length and Sphere Radius

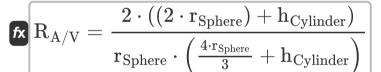


Open Calculator

 $\texttt{ex} \ 628.3185 \text{m}^{_2} = 2 \cdot \pi \cdot 20 \text{m} \cdot 5 \text{m}$

Surface to Volume Ratio of Capsule

13) Surface to Volume Ratio of Capsule



Open Calculator

$$oxed{ex} 0.48 \mathrm{m}^{-_1} = rac{2 \cdot ((2 \cdot 5 \mathrm{m}) + 10 \mathrm{m})}{5 \mathrm{m} \cdot \left(rac{4 \cdot 5 \mathrm{m}}{3} + 10 \mathrm{m}
ight)}$$



Volume of Capsule

14) Volume of Capsule

$$extstyle V = \pi \cdot ext{r}_{ ext{Sphere}}^2 \cdot \left(rac{4 \cdot ext{r}_{ ext{Sphere}}}{3} + ext{h}_{ ext{Cylinder}}
ight)$$

Open Calculator

$$ag{308.997} ext{m}^{\scriptscriptstyle 3} = \pi \cdot (5 ext{m})^2 \cdot \left(rac{4 \cdot 5 ext{m}}{3} + 10 ext{m}
ight)^2$$

15) Volume of Capsule given Cylinder Height and Length

fx

Open Calculator

$$ext{V} = \pi \cdot \left(rac{ ext{l} - ext{h}_{ ext{Cylinder}}}{2}
ight)^2 \cdot \left(rac{2 \cdot (ext{l} - ext{h}_{ ext{Cylinder}})}{3} + ext{h}_{ ext{Cylinder}}
ight)^2$$

$$ag{20} = \pi \cdot \left(rac{20 ext{m} - 10 ext{m}}{2}
ight)^2 \cdot \left(rac{2 \cdot (20 ext{m} - 10 ext{m})}{3} + 10 ext{m}
ight)^2$$

16) Volume of Capsule given Sphere Radius and Length

 $V = \pi \cdot \mathrm{r}_{\mathrm{Sphere}}^2 \cdot \left(\mathrm{l} - rac{2 \cdot \mathrm{r}_{\mathrm{Sphere}}}{3}
ight)^2$

Open Calculator 🗗

$$ag{208.997 ext{m}^{ ext{ iny 3}} = \pi \cdot \left(5 ext{m}
ight)^2 \cdot \left(20 ext{m} - rac{2 \cdot 5 ext{m}}{3}
ight)^2}$$



Variables Used

- h_{Cylinder} Cylinder Height of Capsule (Meter)
- Length of Capsule (Meter)
- R_{A/V} Surface to Volume Ratio of Capsule (1 per Meter)
- r_{Sphere} Sphere Radius of Capsule (Meter)
- TSA Total Surface Area of Capsule (Square Meter)
- **V** Volume of Capsule (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 (m³)

 Volume Unit Conversion
- Measurement: Area in Square Meter (m²)

 Area Unit Conversion
- Measurement: Reciprocal Length in 1 per Meter (m⁻¹)

 Reciprocal Length 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 G.
- 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



10/10

- Small Stellated Dodecahedron Formulas
- Solid of Revolution Formulas
- Sphere Formulas
- Spherical Cap Formulas
- Spherical Corner Formulas
- Spherical Ring Formulas G
- 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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