

Important Formulas of Half Cylinder PDF



Formulas Examples with Units

List of 20 Important Formulas of Half Cylinder

1) Height of Half Cylinder Formulas

1.1) Height of Half Cylinder given Curved Surface Area Formula

Formula

$$h = \frac{CSA}{\pi \cdot r}$$

Example with Units

$$11.9366 \text{ m} = \frac{375 \text{ m}^2}{3.1416 \cdot 10 \text{ m}}$$

Evaluate Formula

1.2) Height of Half Cylinder given Space Diagonal Formula

Formula

$$h = \sqrt{d_{\text{Space}}^2 - r^2}$$

Example with Units

$$11.1803 \text{ m} = \sqrt{15 \text{ m}^2 - 10 \text{ m}^2}$$

Evaluate Formula

1.3) Height of Half Cylinder given Volume Formula

Formula

$$h = \frac{2 \cdot V}{\pi \cdot r^2}$$

Example with Units

$$12.0003 \text{ m} = \frac{2 \cdot 1885 \text{ m}^3}{3.1416 \cdot 10 \text{ m}^2}$$

Evaluate Formula

2) Radius of Half Cylinder Formulas

2.1) Radius of Half Cylinder given Base Area Formula

Formula

$$r = \sqrt{\frac{2 \cdot A_{\text{Base}}}{\pi}}$$

Example with Units

$$9.9336 \text{ m} = \sqrt{\frac{2 \cdot 155 \text{ m}^2}{3.1416}}$$

Evaluate Formula

2.2) Radius of Half Cylinder given Curved Surface Area Formula

Formula

$$r = \frac{CSA}{\pi \cdot h}$$

Example with Units

$$9.9472 \text{ m} = \frac{375 \text{ m}^2}{3.1416 \cdot 12 \text{ m}}$$

Evaluate Formula



2.3) Radius of Half Cylinder given Space Diagonal Formula ↺

Formula

$$r = \sqrt{d_{\text{Space}}^2 - h^2}$$

Example with Units

$$9\text{ m} = \sqrt{15\text{ m}^2 - 12\text{ m}^2}$$

Evaluate Formula ↺

3) Space Diagonal of Half Cylinder Formulas ↺

3.1) Space Diagonal of Half Cylinder Formula ↺

Formula

$$d_{\text{Space}} = \sqrt{h^2 + r^2}$$

Example with Units

$$15.6205\text{ m} = \sqrt{12\text{ m}^2 + 10\text{ m}^2}$$

Evaluate Formula ↺

3.2) Space Diagonal of Half Cylinder given Curved Surface Area and Height Formula ↺

Formula

$$d_{\text{Space}} = \sqrt{h^2 + \left(\frac{\text{CSA}}{\pi \cdot h}\right)^2}$$

Example with Units

$$15.5867\text{ m} = \sqrt{12\text{ m}^2 + \left(\frac{375\text{ m}^2}{3.1416 \cdot 12\text{ m}}\right)^2}$$

Evaluate Formula ↺

3.3) Space Diagonal of Half Cylinder given Volume and Height Formula ↺

Formula

$$d_{\text{Space}} = \sqrt{h^2 + \left(\frac{2 \cdot V}{\pi \cdot h}\right)^2}$$

Example with Units

$$15.6206\text{ m} = \sqrt{12\text{ m}^2 + \left(\frac{2 \cdot 1885\text{ m}^3}{3.1416 \cdot 12\text{ m}}\right)^2}$$

Evaluate Formula ↺

4) Surface Area of Half Cylinder Formulas ↺

4.1) Base Area of Half Cylinder Formula ↺

Formula

$$A_{\text{Base}} = \frac{\pi \cdot r^2}{2}$$

Example with Units

$$157.0796\text{ m}^2 = \frac{3.1416 \cdot 10\text{ m}^2}{2}$$

Evaluate Formula ↺

4.2) Curved Surface Area of Half Cylinder Formula ↺

Formula

$$\text{CSA} = \pi \cdot r \cdot h$$

Example with Units

$$376.9911\text{ m}^2 = 3.1416 \cdot 10\text{ m} \cdot 12\text{ m}$$

Evaluate Formula ↺

4.3) Curved Surface Area of Half Cylinder given Space Diagonal and Height Formula ↺

Formula

$$\text{CSA} = \pi \cdot h \cdot \sqrt{d_{\text{Space}}^2 - h^2}$$

Example with Units

$$339.292\text{ m}^2 = 3.1416 \cdot 12\text{ m} \cdot \sqrt{15\text{ m}^2 - 12\text{ m}^2}$$

Evaluate Formula ↺



4.4) Curved Surface Area of Half Cylinder given Space Diagonal and Radius Formula

Formula

$$CSA = \pi \cdot r \cdot \sqrt{d_{\text{Space}}^2 - r^2}$$

Example with Units

$$351.2407 \text{ m}^2 = 3.1416 \cdot 10 \text{ m} \cdot \sqrt{15 \text{ m}^2 - 10 \text{ m}^2}$$

Evaluate Formula 

4.5) Total Surface Area of Half Cylinder Formula

Formula

$$TSA = (\pi \cdot r \cdot (h + r)) + (2 \cdot r \cdot h)$$

Example with Units

$$931.1504 \text{ m}^2 = (3.1416 \cdot 10 \text{ m} \cdot (12 \text{ m} + 10 \text{ m})) + (2 \cdot 10 \text{ m} \cdot 12 \text{ m})$$

Evaluate Formula 

4.6) Total Surface Area of Half Cylinder given Curved Surface Area and Radius Formula

Formula

$$TSA = CSA + \pi \cdot r^2 + \frac{2 \cdot CSA}{\pi}$$

Example with Units

$$927.8917 \text{ m}^2 = 375 \text{ m}^2 + 3.1416 \cdot 10 \text{ m}^2 + \frac{2 \cdot 375 \text{ m}^2}{3.1416}$$

Evaluate Formula 

4.7) Total Surface Area of Half Cylinder given Space Diagonal and Height Formula

Formula

$$TSA = \left(\pi \cdot \sqrt{d_{\text{Space}}^2 - h^2} \cdot \left(h + \sqrt{d_{\text{Space}}^2 - h^2} \right) \right) + \left(2 \cdot \sqrt{d_{\text{Space}}^2 - h^2} \cdot h \right)$$

Example with Units

$$809.761 \text{ m}^2 = \left(3.1416 \cdot \sqrt{15 \text{ m}^2 - 12 \text{ m}^2} \cdot \left(12 \text{ m} + \sqrt{15 \text{ m}^2 - 12 \text{ m}^2} \right) \right) + \left(2 \cdot \sqrt{15 \text{ m}^2 - 12 \text{ m}^2} \cdot 12 \text{ m} \right)$$

Evaluate Formula 

4.8) Total Surface Area of Half Cylinder given Volume and Radius Formula

Formula

$$TSA = \frac{2 \cdot V}{r} + \pi \cdot r^2 + \frac{4 \cdot V}{\pi \cdot r}$$

Example with Units

$$931.1649 \text{ m}^2 = \frac{2 \cdot 1885 \text{ m}^3}{10 \text{ m}} + 3.1416 \cdot 10 \text{ m}^2 + \frac{4 \cdot 1885 \text{ m}^3}{3.1416 \cdot 10 \text{ m}}$$

Evaluate Formula 

5) Volume of Half Cylinder Formulas

5.1) Volume of Half Cylinder Formula

Formula

$$V = \frac{1}{2} \cdot \pi \cdot r^2 \cdot h$$

Example with Units

$$1884.9556 \text{ m}^3 = \frac{1}{2} \cdot 3.1416 \cdot 10 \text{ m}^2 \cdot 12 \text{ m}$$

Evaluate Formula 



5.2) Volume of Half Cylinder given Curved Surface Area and Height Formula

Formula

$$V = \frac{1}{2} \cdot \frac{CSA^2}{\pi \cdot h}$$

Example with Units

$$1865.097 \text{ m}^3 = \frac{1}{2} \cdot \frac{375 \text{ m}^2^2}{3.1416 \cdot 12 \text{ m}}$$

Evaluate Formula 

5.3) Volume of Half Cylinder given Space Diagonal and Radius Formula

Formula

$$V = \frac{1}{2} \cdot \pi \cdot r^2 \cdot \sqrt{d_{\text{Space}}^2 - r^2}$$

Example with Units

$$1756.2037 \text{ m}^3 = \frac{1}{2} \cdot 3.1416 \cdot 10 \text{ m}^2 \cdot \sqrt{15 \text{ m}^2 - 10 \text{ m}^2}$$

Evaluate Formula 



Variables used in list of Important Formulas of Half Cylinder above

- **A_{Base}** Base Area of Half Cylinder (Square Meter)
- **CSA** Curved Surface Area of Half Cylinder (Square Meter)
- **d_{Space}** Space Diagonal of Half Cylinder (Meter)
- **h** Height of Half Cylinder (Meter)
- **r** Radius of Half Cylinder (Meter)
- **TSA** Total Surface Area of Half Cylinder (Square Meter)
- **V** Volume of Half Cylinder (Cubic Meter)

Constants, Functions, Measurements used in list of Important Formulas of Half Cylinder above

- **constant(s):** pi, 3.14159265358979323846264338327950288
Archimedes' constant
- **Functions:** **sqrt**, sqrt(Number)
A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.
- **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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