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# Important Formulas of Half Cylinder

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# List of 20 Important Formulas of Half Cylinder

## Important Formulas of Half Cylinder

### Height of Half Cylinder

#### 1) Height of Half Cylinder given Curved Surface Area

Open Calculator

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

ex $$11.93662\text{m} = \frac{375\text{m}^2}{\pi \cdot 10\text{m}}$$

#### 2) Height of Half Cylinder given Space Diagonal

Open Calculator

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

ex $$11.18034\text{m} = \sqrt{(15\text{m})^2 - (10\text{m})^2}$$

#### 3) Height of Half Cylinder given Volume

Open Calculator

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

ex $$12.00028\text{m} = \frac{2 \cdot 1885\text{m}^3}{\pi \cdot (10\text{m})^2}$$

### Radius of Half Cylinder

#### 4) Radius of Half Cylinder given Base Area

Open Calculator

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

ex $$9.933583\text{m} = \sqrt{\frac{2 \cdot 155\text{m}^2}{\pi}}$$

### 5) Radius of Half Cylinder given Curved Surface Area

Open Calculator

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

ex $$9.947184\text{m} = \frac{375\text{m}^2}{\pi \cdot 12\text{m}}$$

### 6) Radius of Half Cylinder given Space Diagonal

Open Calculator

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

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

## Space Diagonal of Half Cylinder

### 7) Space Diagonal of Half Cylinder

Open Calculator

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

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

### 8) Space Diagonal of Half Cylinder given Curved Surface Area and Height

Open Calculator

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

ex $$15.58674\text{m} = \sqrt{(12\text{m})^2 + \left(\frac{375\text{m}^2}{\pi \cdot 12\text{m}}\right)^2}$$

### 9) Space Diagonal of Half Cylinder given Volume and Height

Open Calculator

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

ex $$15.62057\text{m} = \sqrt{(12\text{m})^2 + \left(\frac{2 \cdot 1885\text{m}^3}{\pi \cdot 12\text{m}}\right)}$$

## Surface Area of Half Cylinder

### 10) Base Area of Half Cylinder

Open Calculator

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

ex $$157.0796\text{m}^2 = \frac{\pi \cdot (10\text{m})^2}{2}$$

### 11) Curved Surface Area of Half Cylinder

Open Calculator

fx $$CSA = \pi \cdot r \cdot h$$

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

### 12) Curved Surface Area of Half Cylinder given Space Diagonal and Height

Open Calculator

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

ex $$339.292\text{m}^2 = \pi \cdot 12\text{m} \cdot \sqrt{(15\text{m})^2 - (12\text{m})^2}$$

### 13) Curved Surface Area of Half Cylinder given Space Diagonal and Radius

Open Calculator

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

ex $$351.2407\text{m}^2 = \pi \cdot 10\text{m} \cdot \sqrt{(15\text{m})^2 - (10\text{m})^2}$$

### 14) Total Surface Area of Half Cylinder

Open Calculator

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

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

### 15) Total Surface Area of Half Cylinder given Curved Surface Area and Radius

Open Calculator

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

ex $$927.8917\text{m}^2 = 375\text{m}^2 + \pi \cdot (10\text{m})^2 + \frac{2 \cdot 375\text{m}^2}{\pi}$$

### 16) Total Surface Area of Half Cylinder given Space Diagonal and Height

Open Calculator

fx $$\mathrm{TSA} = \left(\pi \cdot \sqrt{\mathrm{d}_{\mathrm{Space}}^2 - \mathrm{h}^2} \cdot \left(\mathrm{h} + \sqrt{\mathrm{d}_{\mathrm{Space}}^2 - \mathrm{h}^2}\right)\right) + \left(2 \cdot \sqrt{\mathrm{d}_{\mathrm{Space}}^2 - \mathrm{h}^2} \cdot \mathrm{h}\right)$$

ex $$809.761\mathrm{m}^2 = \left(\pi \cdot \sqrt{(15\mathrm{m})^2 - (12\mathrm{m})^2} \cdot \left(12\mathrm{m} + \sqrt{(15\mathrm{m})^2 - (12\mathrm{m})^2}\right)\right) + \left(2 \cdot \sqrt{(15\mathrm{m})^2 - (12\mathrm{m})^2} \cdot 12\mathrm{m}\right)$$

### 17) Total Surface Area of Half Cylinder given Volume and Radius

Open Calculator

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

ex $$931.1649\mathrm{m}^2 = \frac{2 \cdot 1885\mathrm{m}^3}{10\mathrm{m}} + \pi \cdot (10\mathrm{m})^2 + \frac{4 \cdot 1885\mathrm{m}^3}{\pi \cdot 10\mathrm{m}}$$

## Volume of Half Cylinder

### 18) Volume of Half Cylinder

Open Calculator

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

ex $$1884.956\mathrm{m}^3 = \frac{1}{2} \cdot \pi \cdot (10\mathrm{m})^2 \cdot 12\mathrm{m}$$

### 19) Volume of Half Cylinder given Curved Surface Area and Height

Open Calculator

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

ex $$1865.097\mathrm{m}^3 = \frac{1}{2} \cdot \frac{(375\mathrm{m}^2)^2}{\pi \cdot 12\mathrm{m}}$$

### 20) Volume of Half Cylinder given Space Diagonal and Radius

Open Calculator

fx $$\mathrm{V} = \frac{1}{2} \cdot \pi \cdot \mathrm{r}^2 \cdot \sqrt{\mathrm{d}_{\mathrm{Space}}^2 - \mathrm{r}^2}$$

ex $$1756.204\mathrm{m}^3 = \frac{1}{2} \cdot \pi \cdot (10\mathrm{m})^2 \cdot \sqrt{(15\mathrm{m})^2 - (10\mathrm{m})^2}$$

## Variables Used

- $A_{Base}$ 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

- 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 ($m^3$)
  *Volume Unit Conversion*
- Measurement: **Area** in Square Meter ($m^2$)
  *Area Unit Conversion*

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