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# Important Formulas of Cylinder

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# List of 29 Important Formulas of Cylinder

## Important Formulas of Cylinder

### Diagonal of Cylinder

#### 1) Diagonal of Cylinder

$$fx \quad d = \sqrt{h^2 + (2 \cdot r)^2}$$

[Open Calculator !\[\]\(de95854c7ee024cfadc48187bbb781b2\_img.jpg\)](#)

$$ex \quad 15.6205m^2 = \sqrt{(12m)^2 + (2 \cdot 5m)^2}$$

#### 2) Diagonal of Cylinder given Lateral Surface Area and Height

$$fx \quad d = \sqrt{h^2 + \left( \frac{LSA}{\pi \cdot h} \right)^2}$$

[Open Calculator !\[\]\(6a9b39b98eb945faa14c645ec99e4eaa\_img.jpg\)](#)

$$ex \quad 15.67171m^2 = \sqrt{(12m)^2 + \left( \frac{380m^2}{\pi \cdot (12m)} \right)^2}$$



### 3) Diagonal of Cylinder given Total Surface Area and Radius

Open Calculator 

$$fx \quad d = \sqrt{\left(\frac{TSA}{2 \cdot \pi \cdot r} - r\right)^2 + (2 \cdot r)^2}$$

$$ex \quad 15.52118m^2 = \sqrt{\left(\frac{530m^2}{2 \cdot \pi \cdot 5m} - 5m\right)^2 + (2 \cdot 5m)^2}$$

### 4) Diagonal of Cylinder given Volume and Height

Open Calculator 

$$fx \quad d = \sqrt{h^2 + \frac{4 \cdot V}{\pi \cdot h}}$$

$$ex \quad 15.61208m^2 = \sqrt{(12m)^2 + \frac{4 \cdot 940m^3}{\pi \cdot (12m)}}$$

## Height of Cylinder


### 5) Height of Cylinder given Diagonal

Open Calculator 

$$fx \quad h = \sqrt{d^2 - (2 \cdot r)^2}$$

$$ex \quad 12.49m = \sqrt{(16m^2)^2 - (2 \cdot 5m)^2}$$




6) Height of Cylinder given Lateral Surface Area 

$$fx \quad h = \frac{LSA}{2 \cdot \pi \cdot r}$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95\_img.jpg\)](#)


$$ex \quad 12.09578m = \frac{380m^2}{2 \cdot \pi \cdot 5m}$$

7) Height of Cylinder given Total Surface Area and Base Area 

$$fx \quad h = \frac{TSA - 2 \cdot A_{Base}}{2 \cdot \pi \cdot r}$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2\_img.jpg\)](#)


$$ex \quad 11.77747m = \frac{530m^2 - 2 \cdot 80m^2}{2 \cdot \pi \cdot 5m}$$

8) Height of Cylinder given Volume 

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

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7\_img.jpg\)](#)

$$ex \quad 11.96845m = \frac{940m^3}{\pi \cdot (5m)^2}$$

Perimeter of Cylinder 9) Perimeter of Cylinder 

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

[Open Calculator !\[\]\(c1168d6a8b365d11e842ece304635fa7\_img.jpg\)](#)

$$ex \quad 86.83185m = 2 \cdot (2 \cdot \pi \cdot 5m + 12m)$$



10) Perimeter of Cylinder given Lateral Surface Area and Height 

$$fx \quad P = 2 \cdot \left( \frac{LSA}{h} + h \right)$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a\_img.jpg\)](#)


$$ex \quad 87.33333m = 2 \cdot \left( \frac{380m^2}{12m} + 12m \right)$$

11) Perimeter of Cylinder given Total Surface Area and Height 

$$fx \quad P = 2 \cdot \left( \frac{TSA - 2 \cdot A_{Base}}{h} + h \right)$$

[Open Calculator !\[\]\(0b5e7e25e8775f7e7e80906ada4f0021\_img.jpg\)](#)

$$ex \quad 85.66667m = 2 \cdot \left( \frac{530m^2 - 2 \cdot 80m^2}{12m} + 12m \right)$$

12) Perimeter of Cylinder given Volume and Radius 

$$fx \quad P = 2 \cdot \left( 2 \cdot \pi \cdot r + \frac{V}{\pi \cdot r^2} \right)$$

[Open Calculator !\[\]\(bd3b31712ad9bab5a241210fa6925cdd\_img.jpg\)](#)

$$ex \quad 86.76876m = 2 \cdot \left( 2 \cdot \pi \cdot (5m) + \frac{940m^3}{\pi \cdot (5m)^2} \right)$$



## Radius of Cylinder

### 13) Radius of Cylinder given Lateral Surface Area

$$\text{fx } r = \frac{\text{LSA}}{2 \cdot \pi \cdot h}$$

[Open Calculator !\[\]\(950a62bbddad88d64435fd35607dfc42\_img.jpg\)](#)

$$\text{ex } 5.039907\text{m} = \frac{380\text{m}^2}{2 \cdot \pi \cdot 12\text{m}}$$

### 14) Radius of Cylinder given Total Surface Area and Base Area

$$\text{fx } r = \frac{\text{TSA} - 2 \cdot A_{\text{Base}}}{2 \cdot \pi \cdot h}$$

[Open Calculator !\[\]\(73002692dd5e7a64e60946be3158e719\_img.jpg\)](#)

$$\text{ex } 4.907277\text{m} = \frac{530\text{m}^2 - 2 \cdot 80\text{m}^2}{2 \cdot \pi \cdot 12\text{m}}$$

### 15) Radius of Cylinder given Volume

$$\text{fx } r = \sqrt{\frac{V}{\pi \cdot h}}$$

[Open Calculator !\[\]\(104fbf564e2e5a8fbd84f31656d114c7\_img.jpg\)](#)

$$\text{ex } 4.993423\text{m} = \sqrt{\frac{940\text{m}^3}{\pi \cdot 12\text{m}}}$$



## Surface Area of Cylinder

### 16) Base Area of Cylinder

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

[Open Calculator !\[\]\(83f22ed94ec5517769dd76d702c6bfd8\_img.jpg\)](#)

$$\text{ex } 78.53982\text{m}^2 = \pi \cdot (5\text{m})^2$$

### 17) Lateral Surface Area of Cylinder

$$\text{fx } \text{LSA} = 2 \cdot \pi \cdot r \cdot h$$

[Open Calculator !\[\]\(3cb60d42b10e53f9522bb0b392c1c4cd\_img.jpg\)](#)

$$\text{ex } 376.9911\text{m}^2 = 2 \cdot \pi \cdot 5\text{m} \cdot 12\text{m}$$

### 18) Lateral Surface Area of Cylinder given Diagonal and Radius

$$\text{fx } \text{LSA} = 2 \cdot \pi \cdot r \cdot \sqrt{d^2 - (2 \cdot r)^2}$$

[Open Calculator !\[\]\(0d7ca0919e6c47bbd874bfa0189fe22e\_img.jpg\)](#)

$$\text{ex } 392.3848\text{m}^2 = 2 \cdot \pi \cdot 5\text{m} \cdot \sqrt{(16\text{m})^2 - (2 \cdot 5\text{m})^2}$$

### 19) Lateral Surface Area of Cylinder given Total Surface Area and Base Area

$$\text{fx } \text{LSA} = \text{TSA} - (2 \cdot A_{\text{Base}})$$

[Open Calculator !\[\]\(683dba75afe26e28cd4de5730b776760\_img.jpg\)](#)

$$\text{ex } 370\text{m}^2 = 530\text{m}^2 - (2 \cdot 80\text{m}^2)$$



20) Lateral Surface Area of Cylinder given Volume and Radius 

$$\text{fx } \text{LSA} = \frac{2 \cdot V}{r}$$

[Open Calculator !\[\]\(6605b201d6f14d9b3bcb8ab5f274d107\_img.jpg\)](#)


$$\text{ex } 376\text{m}^2 = \frac{2 \cdot 940\text{m}^3}{5\text{m}}$$

21) Total Surface Area of Cylinder 

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

[Open Calculator !\[\]\(e8fb589d58dad1692debababa5e928b6\_img.jpg\)](#)

$$\text{ex } 534.0708\text{m}^2 = 2 \cdot \pi \cdot 5\text{m} \cdot (12\text{m} + 5\text{m})$$

22) Total Surface Area of Cylinder given Diagonal and Height 

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

[Open Calculator !\[\]\(4688aadfd656ded00cd6bdfae55089a9\_img.jpg\)](#)

$$\text{ex}$$

$$574.8991\text{m}^2 = \pi \cdot \sqrt{(16\text{m}^2)^2 - (12\text{m})^2} \cdot \left( (12\text{m}) + \frac{\sqrt{(16\text{m}^2)^2 - (12\text{m})^2}}{2} \right)$$

23) Total Surface Area of Cylinder given Lateral Surface Area and Base Area 

$$\text{fx } \text{TSA} = \text{LSA} + (2 \cdot A_{\text{Base}})$$

[Open Calculator !\[\]\(9db214d549b9aeebe72aa11d3a5c4b1a\_img.jpg\)](#)

$$\text{ex } 540\text{m}^2 = 380\text{m}^2 + (2 \cdot 80\text{m}^2)$$






24) Total Surface Area of Cylinder given Volume and Radius 

$$\text{fx } \text{TSA} = 2 \cdot \pi \cdot r \cdot \left( \frac{V}{\pi \cdot r^2} + r \right)$$

[Open Calculator !\[\]\(c3d993ca47bfe2a953c700506ce31fa0\_img.jpg\)](#)


$$\text{ex } 533.0796\text{m}^2 = 2 \cdot \pi \cdot (5\text{m}) \cdot \left( \frac{940\text{m}^3}{\pi \cdot (5\text{m})^2} + (5\text{m}) \right)$$

Volume of Cylinder 25) Volume of Cylinder 

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

[Open Calculator !\[\]\(faf942dc3e59ce8eb64b4ac481eca7e0\_img.jpg\)](#)

$$\text{ex } 942.4778\text{m}^3 = \pi \cdot (5\text{m})^2 \cdot 12\text{m}$$

26) Volume of Cylinder given Base Area 

$$\text{fx } V = A_{\text{Base}} \cdot h$$

[Open Calculator !\[\]\(95b425611cbd2b8716a140cf67c81822\_img.jpg\)](#)

$$\text{ex } 960\text{m}^3 = 80\text{m}^2 \cdot 12\text{m}$$

27) Volume of Cylinder given Diagonal and Radius 

$$\text{fx } V = \pi \cdot r^2 \cdot \sqrt{d^2 - (2 \cdot r)^2}$$

[Open Calculator !\[\]\(56549452e01ca28bdf2500ced9653143\_img.jpg\)](#)

$$\text{ex } 980.962\text{m}^3 = \pi \cdot (5\text{m})^2 \cdot \sqrt{(16\text{m}^2)^2 - (2 \cdot (5\text{m}))^2}$$



28) Volume of Cylinder given Lateral Surface Area and Height 

$$\text{fx } V = \frac{\text{LSA}^2}{4 \cdot \pi \cdot h}$$

[Open Calculator !\[\]\(0f848bbd71cef6b345273b16f905912a\_img.jpg\)](#)

$$\text{ex } 957.5822\text{m}^3 = \frac{(380\text{m}^2)^2}{4 \cdot \pi \cdot 12\text{m}}$$

29) Volume of Cylinder given Total Surface Area and Height 

$$\text{fx } V = \frac{(\text{TSA} - 2 \cdot A_{\text{Base}})^2}{4 \cdot \pi \cdot h}$$

[Open Calculator !\[\]\(3211b5d1d968fc1665909b34f9f16010\_img.jpg\)](#)

$$\text{ex } 907.8463\text{m}^3 = \frac{(530\text{m}^2 - 2 \cdot 80\text{m}^2)^2}{4 \cdot \pi \cdot 12\text{m}}$$






## Variables Used

- **A<sub>Base</sub>** Base Area of Cylinder (Square Meter)
- **d** Diagonal of Cylinder (Square Meter)
- **h** Height of Cylinder (Meter)
- **LSA** Lateral Surface Area of Cylinder (Square Meter)
- **P** Perimeter of Cylinder (Meter)
- **r** Radius of Cylinder (Meter)
- **TSA** Total Surface Area of Cylinder (Square Meter)
- **V** Volume of 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<sup>3</sup>)  
*Volume Unit Conversion* 
- **Measurement:** **Area** in Square Meter (m<sup>2</sup>)  
*Area Unit Conversion* 



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