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# Important Formulas of Cone

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# List of 33 Important Formulas of Cone

## Important Formulas of Cone

### Base Circumference of Cone

#### 1) Base Circumference of Cone

$$\text{fx } C_{\text{Base}} = 2 \cdot \pi \cdot r_{\text{Base}}$$

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

$$\text{ex } 62.83185\text{m} = 2 \cdot \pi \cdot 10\text{m}$$

#### 2) Base Circumference of Cone given Base Area

$$\text{fx } C_{\text{Base}} = 2 \cdot \sqrt{\pi \cdot A_{\text{Base}}}$$

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

$$\text{ex } 62.91587\text{m} = 2 \cdot \sqrt{\pi \cdot 315\text{m}^2}$$

#### 3) Base Circumference of Cone given Lateral Surface Area and Slant Height

$$\text{fx } C_{\text{Base}} = 2 \cdot \frac{\text{LSA}}{h_{\text{Slant}}}$$

[Open Calculator !\[\]\(f1c5da15572e3e09d343161be98f508d\_img.jpg\)](#)

$$\text{ex } 63.63636\text{m} = 2 \cdot \frac{350\text{m}^2}{11\text{m}}$$



#### 4) Base Circumference of Cone given Volume

[Open Calculator !\[\]\(4729e517bc6a7cd81c8025b9646574fb\_img.jpg\)](#)

$$\text{fx } C_{\text{Base}} = 2 \cdot \pi \cdot \sqrt{\frac{3 \cdot V}{\pi \cdot h}}$$

$$\text{ex } 62.61555\text{m} = 2 \cdot \pi \cdot \sqrt{\frac{3 \cdot 520\text{m}^3}{\pi \cdot 5\text{m}}}$$

#### Base Radius of Cone

#### 5) Base Radius of Cone given Base Area

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0\_img.jpg\)](#)

$$\text{fx } r_{\text{Base}} = \sqrt{\frac{A_{\text{Base}}}{\pi}}$$

$$\text{ex } 10.01337\text{m} = \sqrt{\frac{315\text{m}^2}{\pi}}$$

#### 6) Base Radius of Cone given Lateral Surface Area and Slant Height

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f\_img.jpg\)](#)

$$\text{fx } r_{\text{Base}} = \frac{\text{LSA}}{\pi \cdot h_{\text{Slant}}}$$

$$\text{ex } 10.12804\text{m} = \frac{350\text{m}^2}{\pi \cdot 11\text{m}}$$



## 7) Base Radius of Cone given Total Surface Area and Slant Height

[Open Calculator !\[\]\(dfbd6b3763a6d1d9afaa974f64e2e4b5\_img.jpg\)](#)

$$\text{fx } r_{\text{Base}} = \frac{1}{2} \cdot \left( \sqrt{h_{\text{Slant}}^2 + \frac{4 \cdot \text{TSA}}{\pi}} - h_{\text{Slant}} \right)$$

$$\text{ex } 10.05397\text{m} = \frac{1}{2} \cdot \left( \sqrt{(11\text{m})^2 + \frac{4 \cdot 665\text{m}^2}{\pi}} - (11\text{m}) \right)$$

## 8) Base Radius of Cone given Volume

[Open Calculator !\[\]\(ec9132f1d27c8919987d92907322654d\_img.jpg\)](#)

$$\text{fx } r_{\text{Base}} = \sqrt{\frac{3 \cdot V}{\pi \cdot h}}$$

$$\text{ex } 9.965575\text{m} = \sqrt{\frac{3 \cdot 520\text{m}^3}{\pi \cdot 5\text{m}}}$$

## Height of Cone


### 9) Height of Cone given Lateral Surface Area

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

$$\text{fx } h = \sqrt{\left( \frac{\text{LSA}}{\pi \cdot r_{\text{Base}}} \right)^2 - r_{\text{Base}}^2}$$


$$\text{ex } 4.911054\text{m} = \sqrt{\left( \frac{350\text{m}^2}{\pi \cdot (10\text{m})} \right)^2 - (10\text{m})^2}$$



10) Height of Cone given Total Surface Area [Open Calculator !\[\]\(bd1a142de767a21e5362c595f844a4ff\_img.jpg\)](#)

$$fx \quad h = \sqrt{\left(\frac{TSA}{\pi \cdot r_{Base}} - r_{Base}\right)^2 - r_{Base}^2}$$

$$ex \quad 4.971464m = \sqrt{\left(\frac{665m^2}{\pi \cdot (10m)} - (10m)\right)^2 - (10m)^2}$$

11) Height of Cone given Volume [Open Calculator !\[\]\(830769b31eeeaca920791081939ff8ba\_img.jpg\)](#)

$$fx \quad h = \frac{3 \cdot V}{\pi \cdot r_{Base}^2}$$

$$ex \quad 4.965634m = \frac{3 \cdot 520m^3}{\pi \cdot (10m)^2}$$

12) Height of Cone given Volume and Base Area [Open Calculator !\[\]\(47734e4656765d20df4fdbd5b7aff048\_img.jpg\)](#)

$$fx \quad h = \frac{3 \cdot V}{A_{Base}}$$

$$ex \quad 4.952381m = \frac{3 \cdot 520m^3}{315m^2}$$



### 13) Height of Cone given Volume and Base Circumference

$$\text{fx } h = \frac{12 \cdot \pi \cdot V}{C_{\text{Base}}^2}$$

[Open Calculator !\[\]\(d3fb9f94af8b26d1c844efa9a98805b0\_img.jpg\)](#)

$$\text{ex } 5.445427\text{m} = \frac{12 \cdot \pi \cdot 520\text{m}^3}{(60\text{m})^2}$$

### Slant Height of Cone

#### 14) Slant Height of Cone

$$\text{fx } h_{\text{Slant}} = \sqrt{h^2 + r_{\text{Base}}^2}$$

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

$$\text{ex } 11.18034\text{m} = \sqrt{(5\text{m})^2 + (10\text{m})^2}$$


#### 15) Slant Height of Cone given Lateral Surface Area

$$\text{fx } h_{\text{Slant}} = \frac{\text{LSA}}{\pi \cdot r_{\text{Base}}}$$

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

$$\text{ex } 11.14085\text{m} = \frac{350\text{m}^2}{\pi \cdot 10\text{m}}$$



16) Slant Height of Cone given Total Surface Area 

$$\text{fx } h_{\text{Slant}} = \frac{\text{TSA}}{\pi \cdot r_{\text{Base}}} - r_{\text{Base}}$$

Open Calculator 

$$\text{ex } 11.16761\text{m} = \frac{665\text{m}^2}{\pi \cdot 10\text{m}} - 10\text{m}$$

17) Slant Height of Cone given Volume 

$$\text{fx } h_{\text{Slant}} = \sqrt{\left(\frac{3 \cdot V}{\pi \cdot r_{\text{Base}}^2}\right)^2 + r_{\text{Base}}^2}$$

Open Calculator 

$$\text{ex } 11.16501\text{m} = \sqrt{\left(\frac{3 \cdot 520\text{m}^3}{\pi \cdot (10\text{m})^2}\right)^2 + (10\text{m})^2}$$

Surface Area of Cone 18) Base Area of Cone 

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

Open Calculator 

$$\text{ex } 314.1593\text{m}^2 = \pi \cdot (10\text{m})^2$$



## 19) Base Area of Cone given Lateral Surface Area and Slant Height

$$\text{fx } A_{\text{Base}} = \pi \cdot \left( \frac{\text{LSA}}{\pi \cdot h_{\text{Slant}}} \right)^2$$

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

$$\text{ex } 322.2559\text{m}^2 = \pi \cdot \left( \frac{350\text{m}^2}{\pi \cdot 11\text{m}} \right)^2$$

## 20) Lateral Surface Area of Cone

$$\text{fx } \text{LSA} = \pi \cdot r_{\text{Base}} \cdot h_{\text{Slant}}$$

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

$$\text{ex } 345.5752\text{m}^2 = \pi \cdot 10\text{m} \cdot 11\text{m}$$

## 21) Lateral Surface Area of Cone given Base Area and Slant Height

$$\text{fx } \text{LSA} = \pi \cdot \sqrt{\frac{A_{\text{Base}}}{\pi}} \cdot h_{\text{Slant}}$$

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

$$\text{ex } 346.0373\text{m}^2 = \pi \cdot \sqrt{\frac{315\text{m}^2}{\pi}} \cdot 11\text{m}$$

## 22) Lateral Surface Area of Cone given Base Circumference and Slant Height

$$\text{fx } \text{LSA} = \frac{C_{\text{Base}}}{2} \cdot h_{\text{Slant}}$$

[Open Calculator !\[\]\(4146d17f71dced09c6ad789cacceaa6d\_img.jpg\)](#)

$$\text{ex } 330\text{m}^2 = \frac{60\text{m}}{2} \cdot 11\text{m}$$






23) Lateral Surface Area of Cone given Height 

$$fx \quad LSA = \pi \cdot r_{\text{Base}} \cdot \sqrt{h^2 + r_{\text{Base}}^2}$$

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

$$ex \quad 351.2407\text{m}^2 = \pi \cdot (10\text{m}) \cdot \sqrt{(5\text{m})^2 + (10\text{m})^2}$$

24) Lateral Surface Area of Cone given Volume 

$$fx \quad LSA = \pi \cdot r_{\text{Base}} \cdot \sqrt{\left(\frac{3 \cdot V}{\pi \cdot r_{\text{Base}}^2}\right)^2 + r_{\text{Base}}^2}$$

[Open Calculator !\[\]\(17413706fd4997a1a4bdf85c6864eee1\_img.jpg\)](#)

$$ex \quad 350.7592\text{m}^2 = \pi \cdot (10\text{m}) \cdot \sqrt{\left(\frac{3 \cdot 520\text{m}^3}{\pi \cdot (10\text{m})^2}\right)^2 + (10\text{m})^2}$$

25) Total Surface Area of Cone 

$$fx \quad TSA = \pi \cdot r_{\text{Base}} \cdot (r_{\text{Base}} + h_{\text{Slant}})$$

[Open Calculator !\[\]\(4b7a79268f6ba26c1471d4232fffa85a\_img.jpg\)](#)

$$ex \quad 659.7345\text{m}^2 = \pi \cdot 10\text{m} \cdot (10\text{m} + 11\text{m})$$


26) Total Surface Area of Cone given Base Area 

$$fx \quad TSA = (\pi \cdot r_{\text{Base}} \cdot h_{\text{Slant}}) + A_{\text{Base}}$$

[Open Calculator !\[\]\(3342c215b2a8b663596a81468d5dc314\_img.jpg\)](#)

$$ex \quad 660.5752\text{m}^2 = (\pi \cdot 10\text{m} \cdot 11\text{m}) + 315\text{m}^2$$




27) Total Surface Area of Cone given Lateral Surface Area 

$$\text{fx } \text{TSA} = \text{LSA} + (\pi \cdot r_{\text{Base}}^2)$$

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


$$\text{ex } 664.1593\text{m}^2 = 350\text{m}^2 + (\pi \cdot (10\text{m})^2)$$

28) Total Surface Area of Cone given Lateral Surface Area and Base Area 

$$\text{fx } \text{TSA} = \text{LSA} + A_{\text{Base}}$$

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


$$\text{ex } 665\text{m}^2 = 350\text{m}^2 + 315\text{m}^2$$

Volume of Cone 29) Volume of Cone 

$$\text{fx } V = \frac{\pi \cdot r_{\text{Base}}^2 \cdot h}{3}$$

[Open Calculator !\[\]\(e3275251d0893157c3584e20c81dc3ba\_img.jpg\)](#)

$$\text{ex } 523.5988\text{m}^3 = \frac{\pi \cdot (10\text{m})^2 \cdot 5\text{m}}{3}$$


30) Volume of Cone given Base Circumference 

$$\text{fx } V = \frac{C_{\text{Base}}^2 \cdot h}{12 \cdot \pi}$$

[Open Calculator !\[\]\(eabd9f9ababee93effadc3b380fe65fd\_img.jpg\)](#)


$$\text{ex } 477.4648\text{m}^3 = \frac{(60\text{m})^2 \cdot 5\text{m}}{12 \cdot \pi}$$



31) Volume of Cone given Lateral Surface Area Open Calculator 


$$\text{fx } V = \frac{\pi \cdot r_{\text{Base}}^2 \cdot \sqrt{\left(\frac{\text{LSA}}{\pi \cdot r_{\text{Base}}}\right)^2 - r_{\text{Base}}^2}}{3}$$

$$\text{ex } 514.2844\text{m}^3 = \frac{\pi \cdot (10\text{m})^2 \cdot \sqrt{\left(\frac{350\text{m}^2}{\pi \cdot (10\text{m})}\right)^2 - (10\text{m})^2}}{3}$$

32) Volume of Cone given Slant Height and Height Open Calculator 

$$\text{fx } V = \frac{\pi \cdot (h_{\text{Slant}}^2 - h^2) \cdot h}{3}$$

$$\text{ex } 502.6548\text{m}^3 = \frac{\pi \cdot ((11\text{m})^2 - (5\text{m})^2) \cdot (5\text{m})}{3}$$

33) Volume of Cone given Total Surface Area Open Calculator 

$$\text{fx } V = \frac{\pi \cdot r_{\text{Base}}^2 \cdot \sqrt{\left(\frac{\text{TSA}}{\pi \cdot r_{\text{Base}}} - r_{\text{Base}}\right)^2 - r_{\text{Base}}^2}}{3}$$

$$\text{ex } 520.6105\text{m}^3 = \frac{\pi \cdot (10\text{m})^2 \cdot \sqrt{\left(\frac{665\text{m}^2}{\pi \cdot (10\text{m})} - (10\text{m})\right)^2 - (10\text{m})^2}}{3}$$






## Variables Used

- **$A_{\text{Base}}$**  Base Area of Cone (Square Meter)
- **$C_{\text{Base}}$**  Base Circumference of Cone (Meter)
- **$h$**  Height of Cone (Meter)
- **$h_{\text{Slant}}$**  Slant Height of Cone (Meter)
- **$LSA$**  Lateral Surface Area of Cone (Square Meter)
- **$r_{\text{Base}}$**  Base Radius of Cone (Meter)
- **$TSA$**  Total Surface Area of Cone (Square Meter)
- **$V$**  Volume of Cone (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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