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Important Formulas of Cone

Calculators!

Examples!

Conversions!

List of 33 Important Formulas of Cone

Important Formulas of Cone

Base Circumference of Cone

1) Base Circumference of Cone

Open Calculator

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

ex $$62.83185m = 2 \cdot \pi \cdot 10m$$

2) Base Circumference of Cone given Base Area

Open Calculator

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

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

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

Open Calculator

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

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

4) Base Circumference of Cone given Volume

Open Calculator

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

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

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

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

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

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

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

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

8) Base Radius of Cone given Volume

Open Calculator

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

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

Height of Cone

9) Height of Cone given Lateral Surface Area

Open Calculator

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

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

10) Height of Cone given Total Surface Area

Open Calculator

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

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

11) Height of Cone given Volume

Open Calculator

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

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

12) Height of Cone given Volume and Base Area

Open Calculator

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

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

13) Height of Cone given Volume and Base Circumference

Open Calculator

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

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

Open Calculator

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

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

15) Slant Height of Cone given Lateral Surface Area

Open Calculator

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

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

16) Slant Height of Cone given Total Surface Area

Open Calculator

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

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

Open Calculator

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

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

Open Calculator

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

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

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

Open Calculator

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

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

Open Calculator

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

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

Open Calculator

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

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

Open Calculator

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

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

23) Lateral Surface Area of Cone given Height

Open Calculator

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

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

24) Lateral Surface Area of Cone given Volume

Open Calculator

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

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

25) Total Surface Area of Cone

Open Calculator

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

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

26) Total Surface Area of Cone given Base Area

Open Calculator

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

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

27) Total Surface Area of Cone given Lateral Surface Area

Open Calculator

$$\mathrm{TSA} = \mathrm{LSA} + \left(\pi \cdot \mathrm{r}_{\mathrm{Base}}^2\right)$$

$$664.1593\mathrm{m}^2 = 350\mathrm{m}^2 + \left(\pi \cdot (10\mathrm{m})^2\right)$$

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

Open Calculator

$$\mathrm{TSA} = \mathrm{LSA} + \mathrm{A}_{\mathrm{Base}}$$

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

Volume of Cone

29) Volume of Cone

Open Calculator

$$\mathrm{V} = \frac{\pi \cdot \mathrm{r}_{\mathrm{Base}}^2 \cdot \mathrm{h}}{3}$$

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

30) Volume of Cone given Base Circumference

Open Calculator

$$\mathrm{V} = \frac{\mathrm{C}_{\mathrm{Base}}^2 \cdot \mathrm{h}}{12 \cdot \pi}$$

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

31) Volume of Cone given Lateral Surface Area

Open Calculator

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

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

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

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

33) Volume of Cone given Total Surface Area

Open Calculator

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

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_{Base} Base Area of Cone *(Square Meter)*
- C_{Base} Base Circumference of Cone *(Meter)*
- h Height of Cone *(Meter)*
- h_{Slant} Slant Height of Cone *(Meter)*
- LSA Lateral Surface Area of Cone *(Square Meter)*
- r_{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^3)
  Volume Unit Conversion
- Measurement: **Area** in Square Meter (m^2)
  Area Unit Conversion

Check other formula lists

- **Cone Formulas**
- **Truncated Cone Formulas**

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