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Important Formulas of Cube

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List of 35 Important Formulas of Cube

Important Formulas of Cube ⎘

Area of Cube ⎘

1) Face Area of Cube ⎘

fx $\mathrm{A_{Face}} = \mathrm{l_e^2}$

Open Calculator ⎘

ex $100\mathrm{m^2} = (10\mathrm{m})^2$

2) Face Area of Cube given Circumsphere Radius ⎘

fx $\mathrm{A_{Face}} = \dfrac{4}{3} \cdot \mathrm{r_c^2}$

Open Calculator ⎘

ex $108\mathrm{m^2} = \dfrac{4}{3} \cdot (9\mathrm{m})^2$

3) Face Area of Cube given Perimeter ⎘

fx $\mathrm{A_{Face}} = \left(\dfrac{\mathrm{P}}{12}\right)^2$

Open Calculator ⎘

ex $100\mathrm{m^2} = \left(\dfrac{120\mathrm{m}}{12}\right)^2$

4) Lateral Surface Area of Cube ↗

fx $\text{LSA} = 4 \cdot l_e^2$

Open Calculator ↗

ex $400\text{m}^2 = 4 \cdot (10\text{m})^2$

5) Lateral Surface Area of Cube given Total Surface Area and Edge Length ↗

fx $\text{LSA} = \text{TSA} - 2 \cdot l_e^2$

Open Calculator ↗

ex $400\text{m}^2 = 600\text{m}^2 - 2 \cdot (10\text{m})^2$

6) Lateral Surface Area of Cube given Volume ↗

fx $\text{LSA} = 4 \cdot V^{\frac{2}{3}}$

Open Calculator ↗

ex $400\text{m}^2 = 4 \cdot (1000\text{m}^3)^{\frac{2}{3}}$

7) Total Surface Area of Cube ↗

fx $\text{TSA} = 6 \cdot l_e^2$

Open Calculator ↗

ex $600\text{m}^2 = 6 \cdot (10\text{m})^2$

8) Total Surface Area of Cube given Lateral Surface Area ↗

fx $\text{TSA} = \frac{3}{2} \cdot \text{LSA}$

Open Calculator ↗

ex $600\text{m}^2 = \frac{3}{2} \cdot 400\text{m}^2$

9) Total Surface Area of Cube given Space Diagonal ⚡

fx $\boxed{\text{TSA} = 2 \cdot \text{d}_{\text{Space}}^2}$

Open Calculator ⚡

ex $\boxed{578\text{m}^2 = 2 \cdot (17\text{m})^2}$

10) Total Surface Area of Cube given Volume ⚡

fx $\boxed{\text{TSA} = 6 \cdot \text{V}^{\frac{2}{3}}}$

Open Calculator ⚡

ex $\boxed{600\text{m}^2 = 6 \cdot (1000\text{m}^3)^{\frac{2}{3}}}$

Diagonal of Cube ⚡

11) Face Diagonal of Cube ⚡

fx $\boxed{\text{d}_{\text{Face}} = \sqrt{2} \cdot \text{l}_{\text{e}}}$

Open Calculator ⚡

ex $\boxed{14.14214\text{m} = \sqrt{2} \cdot 10\text{m}}$

12) Face Diagonal of Cube given Lateral Surface Area ⚡

fx $\boxed{\text{d}_{\text{Face}} = \sqrt{\dfrac{\text{LSA}}{2}}}$

Open Calculator ⚡

ex $\boxed{14.14214\text{m} = \sqrt{\dfrac{400\text{m}^2}{2}}}$

13) Face Diagonal of Cube given Total Surface Area ⬀

Open Calculator ⬀

$$fx \quad d_{Face} = \sqrt{\dfrac{TSA}{3}}$$

$$ex \quad 14.14214m = \sqrt{\dfrac{600m^2}{3}}$$

14) Space Diagonal of Cube ⬀

Open Calculator ⬀

$$fx \quad d_{Space} = \sqrt{3} \cdot l_e$$

$$ex \quad 17.32051m = \sqrt{3} \cdot 10m$$

15) Space Diagonal of Cube given Circumsphere Radius ⬀

Open Calculator ⬀

$$fx \quad d_{Space} = 2 \cdot r_c$$

$$ex \quad 18m = 2 \cdot 9m$$

16) Space Diagonal of Cube given Perimeter ⬀

Open Calculator ⬀

$$fx \quad d_{Space} = \dfrac{\sqrt{3} \cdot P}{12}$$

$$ex \quad 17.32051m = \dfrac{\sqrt{3} \cdot 120m}{12}$$

17) Space Diagonal of Cube given Total Surface Area ⎘

Open Calculator ⎘

$$\textit{fx} \quad d_{\text{Space}} = \sqrt{\frac{\text{TSA}}{2}}$$

$$\textbf{ex} \quad 17.32051m = \sqrt{\frac{600m^2}{2}}$$

Edge Length of Cube ⎘

18) Edge Length of Cube given Circumsphere Radius ⎘

Open Calculator ⎘

$$\textit{fx} \quad l_e = \frac{2}{\sqrt{3}} \cdot r_c$$

$$\textbf{ex} \quad 10.3923m = \frac{2}{\sqrt{3}} \cdot 9m$$

19) Edge Length of Cube given Space Diagonal ⎘

Open Calculator ⎘

$$\textit{fx} \quad l_e = \frac{d_{\text{Space}}}{\sqrt{3}}$$

$$\textbf{ex} \quad 9.814955m = \frac{17m}{\sqrt{3}}$$

20) Edge Length of Cube given Total Surface Area

fx $l_e = \sqrt{\dfrac{TSA}{6}}$

Open Calculator

ex $10m = \sqrt{\dfrac{600m^2}{6}}$

21) Edge Length of Cube given Volume

fx $l_e = V^{\frac{1}{3}}$

Open Calculator

ex $10m = (1000m^3)^{\frac{1}{3}}$

Perimeter of Cube

22) Face Perimeter of Cube

fx $P_{Face} = 4 \cdot l_e$

Open Calculator

ex $40m = 4 \cdot 10m$

23) Face Perimeter of Cube given Total Surface Area

fx $P_{Face} = 4 \cdot \sqrt{\dfrac{TSA}{6}}$

Open Calculator

ex $40m = 4 \cdot \sqrt{\dfrac{600m^2}{6}}$

24) Perimeter of Cube 📲

fx $P = 12 \cdot l_e$

Open Calculator 📲

ex $120m = 12 \cdot 10m$

25) Perimeter of Cube given Face Perimeter 📲

fx $P = 3 \cdot P_{Face}$

Open Calculator 📲

ex $120m = 3 \cdot 40m$

26) Perimeter of Cube given Volume 📲

fx $P = 12 \cdot V^{\frac{1}{3}}$

Open Calculator 📲

ex $120m = 12 \cdot (1000m^3)^{\frac{1}{3}}$

Radius of Cube 📲

27) Circumscribed Cylinder Radius of Cube 📲

fx $r_{c(Cylinder)} = \dfrac{l_e}{\sqrt{2}}$

Open Calculator 📲

ex $7.071068m = \dfrac{10m}{\sqrt{2}}$

28) Circumsphere Radius of Cube

fx $r_c = \dfrac{\sqrt{3}}{2} \cdot l_e$

Open Calculator

ex $8.660254m = \dfrac{\sqrt{3}}{2} \cdot 10m$

29) Inscribed Cylinder Radius of Cube

fx $r_{i(Cylinder)} = \dfrac{l_e}{2}$

Open Calculator

ex $5m = \dfrac{10m}{2}$

30) Insphere Radius of Cube

fx $r_i = \dfrac{l_e}{2}$

Open Calculator

ex $5m = \dfrac{10m}{2}$

31) Midsphere Radius of Cube

fx $r_m = \dfrac{l_e}{\sqrt{2}}$

Open Calculator

ex $7.071068m = \dfrac{10m}{\sqrt{2}}$

Volume of Cube

32) Volume of Cube

fx $V = l_e^3$

Open Calculator

ex $1000 \text{m}^3 = (10\text{m})^3$

33) Volume of Cube given Circumsphere Radius

fx $V = \left(\dfrac{2}{\sqrt{3}} \cdot r_c \right)^3$

Open Calculator

ex $1122.369 \text{m}^3 = \left(\dfrac{2}{\sqrt{3}} \cdot 9\text{m} \right)^3$

34) Volume of Cube given Space Diagonal

fx $V = \left(\dfrac{d_{\text{Space}}}{\sqrt{3}} \right)^3$

Open Calculator

ex $945.5073 \text{m}^3 = \left(\dfrac{17\text{m}}{\sqrt{3}} \right)^3$

35) Volume of Cube given Total Surface Area 🔗

Open Calculator 🔗

fx $V = \left(\dfrac{\text{TSA}}{6} \right)^{\frac{3}{2}}$

ex $1000\text{m}^3 = \left(\dfrac{600\text{m}^2}{6} \right)^{\frac{3}{2}}$

Variables Used

- A_{Face} Face Area of Cube *(Square Meter)*
- d_{Face} Face Diagonal of Cube *(Meter)*
- d_{Space} Space Diagonal of Cube *(Meter)*
- l_e Edge Length of Cube *(Meter)*
- LSA Lateral Surface Area of Cube *(Square Meter)*
- P Perimeter of Cube *(Meter)*
- P_{Face} Face Perimeter of Cube *(Meter)*
- r_c Circumsphere Radius of Cube *(Meter)*
- $r_{c(Cylinder)}$ Circumscribed Cylinder Radius of Cube *(Meter)*
- r_i Insphere Radius of Cube *(Meter)*
- $r_{i(Cylinder)}$ Inscribed Cylinder Radius of Cube *(Meter)*
- r_m Midsphere Radius of Cube *(Meter)*
- TSA Total Surface Area of Cube *(Square Meter)*
- V Volume of Cube *(Cubic Meter)*

Constants, Functions, Measurements used

- Function: **sqrt**, sqrt(Number)
  Square root function
- 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 ↗

Check other formula lists

- **Cube Formulas** ⎘
- **Dodecahedron Formulas** ⎘
- **Icosahedron Formulas** ⎘
- **Octahedron Formulas** ⎘
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