

Important Formulas of Cube PDF



Formulas Examples with Units

List of 35 Important Formulas of Cube

1) Area of Cube Formulas

1.1) Face Area of Cube Formula

Formula

$$A_{\text{Face}} = l_e^2$$

Example with Units

$$100 \text{ m}^2 = 10 \text{ m}^2$$

Evaluate Formula 

1.2) Face Area of Cube given Circumsphere Radius Formula

Formula

$$A_{\text{Face}} = \frac{4}{3} \cdot r_c^2$$

Example with Units

$$108 \text{ m}^2 = \frac{4}{3} \cdot 9 \text{ m}^2$$

Evaluate Formula 

1.3) Face Area of Cube given Perimeter Formula

Formula

$$A_{\text{Face}} = \left(\frac{P}{12} \right)^2$$

Example with Units

$$100 \text{ m}^2 = \left(\frac{120 \text{ m}}{12} \right)^2$$

Evaluate Formula 

1.4) Lateral Surface Area of Cube Formula

Formula

$$LSA = 4 \cdot l_e^2$$

Example with Units

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

Evaluate Formula 

1.5) Lateral Surface Area of Cube given Total Surface Area and Edge Length Formula

Formula

$$LSA = TSA - 2 \cdot l_e^2$$

Example with Units

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

Evaluate Formula 

1.6) Lateral Surface Area of Cube given Volume Formula

Formula

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

Example with Units

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

Evaluate Formula 



1.7) Total Surface Area of Cube Formula

Formula

$$TSA = 6 \cdot l_e^2$$

Example with Units

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

Evaluate Formula 

1.8) Total Surface Area of Cube given Lateral Surface Area Formula

Formula

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

Example with Units

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

Evaluate Formula 

1.9) Total Surface Area of Cube given Space Diagonal Formula

Formula

$$TSA = 2 \cdot d_{\text{Space}}^2$$

Example with Units

$$578\text{m}^2 = 2 \cdot 17\text{m}^2$$

Evaluate Formula 

1.10) Total Surface Area of Cube given Volume Formula

Formula

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

Example with Units

$$600\text{m}^2 = 6 \cdot 1000\text{m}^3^{\frac{2}{3}}$$

Evaluate Formula 

2) Diagonal of Cube Formulas

2.1) Face Diagonal of Cube Formula

Formula

$$d_{\text{Face}} = \sqrt{2} \cdot l_e$$

Example with Units

$$14.1421\text{m} = \sqrt{2} \cdot 10\text{m}$$

Evaluate Formula 

2.2) Face Diagonal of Cube given Lateral Surface Area Formula

Formula

$$d_{\text{Face}} = \sqrt{\frac{LSA}{2}}$$

Example with Units

$$14.1421\text{m} = \sqrt{\frac{400\text{m}^2}{2}}$$

Evaluate Formula 

2.3) Face Diagonal of Cube given Total Surface Area Formula

Formula

$$d_{\text{Face}} = \sqrt{\frac{TSA}{3}}$$

Example with Units

$$14.1421\text{m} = \sqrt{\frac{600\text{m}^2}{3}}$$

Evaluate Formula 

2.4) Space Diagonal of Cube Formula

Formula

$$d_{\text{Space}} = \sqrt{3} \cdot l_e$$

Example with Units

$$17.3205\text{m} = \sqrt{3} \cdot 10\text{m}$$

Evaluate Formula 



2.5) Space Diagonal of Cube given Circumsphere Radius Formula

Formula

$$d_{\text{Space}} = 2 \cdot r_c$$

Example with Units

$$18\text{ m} = 2 \cdot 9\text{ m}$$

Evaluate Formula 

2.6) Space Diagonal of Cube given Perimeter Formula

Formula

$$d_{\text{Space}} = \frac{\sqrt{3} \cdot P}{12}$$

Example with Units

$$17.3205\text{ m} = \frac{\sqrt{3} \cdot 120\text{ m}}{12}$$

Evaluate Formula 

2.7) Space Diagonal of Cube given Total Surface Area Formula

Formula

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

Example with Units

$$17.3205\text{ m} = \sqrt{\frac{600\text{ m}^2}{2}}$$

Evaluate Formula 

3) Edge Length of Cube Formulas

3.1) Edge Length of Cube given Circumsphere Radius Formula

Formula

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

Example with Units

$$10.3923\text{ m} = \frac{2}{\sqrt{3}} \cdot 9\text{ m}$$

Evaluate Formula 

3.2) Edge Length of Cube given Space Diagonal Formula

Formula

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

Example with Units

$$9.815\text{ m} = \frac{17\text{ m}}{\sqrt{3}}$$

Evaluate Formula 

3.3) Edge Length of Cube given Total Surface Area Formula

Formula

$$l_e = \sqrt{\frac{\text{TSA}}{6}}$$

Example with Units

$$10\text{ m} = \sqrt{\frac{600\text{ m}^2}{6}}$$

Evaluate Formula 

3.4) Edge Length of Cube given Volume Formula

Formula

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

Example with Units

$$10\text{ m} = 1000\text{ m}^3^{\frac{1}{3}}$$

Evaluate Formula 



4) Perimeter of Cube Formulas ↻

4.1) Face Perimeter of Cube Formula ↻

Formula

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

Example with Units

$$40\text{ m} = 4 \cdot 10\text{ m}$$

Evaluate Formula ↻

4.2) Face Perimeter of Cube given Total Surface Area Formula ↻

Formula

$$P_{\text{Face}} = 4 \cdot \sqrt{\frac{\text{TSA}}{6}}$$

Example with Units

$$40\text{ m} = 4 \cdot \sqrt{\frac{600\text{ m}^2}{6}}$$

Evaluate Formula ↻

4.3) Perimeter of Cube Formula ↻

Formula

$$P = 12 \cdot l_e$$

Example with Units

$$120\text{ m} = 12 \cdot 10\text{ m}$$

Evaluate Formula ↻

4.4) Perimeter of Cube given Face Perimeter Formula ↻

Formula

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

Example with Units

$$120\text{ m} = 3 \cdot 40\text{ m}$$

Evaluate Formula ↻

4.5) Perimeter of Cube given Volume Formula ↻

Formula

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

Example with Units

$$120\text{ m} = 12 \cdot 1000\text{ m}^3^{\frac{1}{3}}$$

Evaluate Formula ↻

5) Radius of Cube Formulas ↻

5.1) Circumscribed Cylinder Radius of Cube Formula ↻

Formula

$$r_{\text{C(Cylinder)}} = \frac{l_e}{\sqrt{2}}$$

Example with Units

$$7.0711\text{ m} = \frac{10\text{ m}}{\sqrt{2}}$$

Evaluate Formula ↻

5.2) Circumsphere Radius of Cube Formula ↻

Formula

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

Example with Units

$$8.6603\text{ m} = \frac{\sqrt{3}}{2} \cdot 10\text{ m}$$

Evaluate Formula ↻

5.3) Inscribed Cylinder Radius of Cube Formula ↻

Formula

$$r_{\text{i(Cylinder)}} = \frac{l_e}{2}$$

Example with Units

$$5\text{ m} = \frac{10\text{ m}}{2}$$

Evaluate Formula ↻



5.4) Insphere Radius of Cube Formula ↗

Formula

$$r_i = \frac{l_e}{2}$$

Example with Units

$$5_m = \frac{10_m}{2}$$

Evaluate Formula ↗

5.5) Midsphere Radius of Cube Formula ↗

Formula

$$r_m = \frac{l_e}{\sqrt{2}}$$

Example with Units

$$7.0711_m = \frac{10_m}{\sqrt{2}}$$

Evaluate Formula ↗

6) Volume of Cube Formulas ↗

6.1) Volume of Cube Formula ↗

Formula

$$V = l_e^3$$

Example with Units

$$1000_{m^3} = 10_m^3$$

Evaluate Formula ↗

6.2) Volume of Cube given Circumsphere Radius Formula ↗

Formula

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

Example with Units

$$1122.3689_{m^3} = \left(\frac{2}{\sqrt{3}} \cdot 9_m \right)^3$$

Evaluate Formula ↗

6.3) Volume of Cube given Space Diagonal Formula ↗

Formula

$$V = \left(\frac{d_{\text{space}}}{\sqrt{3}} \right)^3$$

Example with Units

$$945.5073_{m^3} = \left(\frac{17_m}{\sqrt{3}} \right)^3$$

Evaluate Formula ↗

6.4) Volume of Cube given Total Surface Area Formula ↗

Formula

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

Example with Units

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

Evaluate Formula ↗



Variables used in list of Important Formulas of Cube above

- **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 in list of Important Formulas of Cube above

- **Functions:** **sqrt**, sqrt(Number)
A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.
- **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 



Download other Important Platonic Solids PDFs

- [Important Cube Formulas](#) 
- [Important Octahedron Formulas](#) 
- [Important Dodecahedron Formulas](#) 
- [Important Tetrahedron Formulas](#) 
- [Important Icosahedron Formulas](#) 

Try our Unique Visual Calculators

-  [Winning percentage](#) 
-  [LCM of two numbers](#) 
-  [Mixed fraction](#) 

Please SHARE this PDF with someone who needs it!

This PDF can be downloaded in these languages

[English](#) [Spanish](#) [French](#) [German](#) [Russian](#) [Italian](#) [Portuguese](#) [Polish](#) [Dutch](#)

7/9/2024 | 1:20:30 PM UTC

