

Important Truncated Tetrahedron Formulas PDF



Formulas
Examples
with Units

List of 9 Important Truncated Tetrahedron Formulas

1) Edge Length of Truncated Tetrahedron Formulas ↻

1.1) Edge Length of Truncated Tetrahedron given Tetrahedral Edge Length Formula ↻

Formula

$$l_e = \frac{l_e(\text{Tetrahedron})}{3}$$

Example with Units

$$10\text{ m} = \frac{30\text{ m}}{3}$$

Evaluate Formula ↻

1.2) Edge Length of Truncated Tetrahedron given Total Surface Area Formula ↻

Formula

$$l_e = \sqrt{\frac{\text{TSA}}{7 \cdot \sqrt{3}}}$$

Example with Units

$$9.9486\text{ m} = \sqrt{\frac{1200\text{ m}^2}{7 \cdot \sqrt{3}}}$$

Evaluate Formula ↻

1.3) Edge Length of Truncated Tetrahedron given Volume Formula ↻

Formula

$$l_e = \left(\frac{12 \cdot V}{23 \cdot \sqrt{2}} \right)^{\frac{1}{3}}$$

Example with Units

$$9.987\text{ m} = \left(\frac{12 \cdot 2700\text{ m}^3}{23 \cdot \sqrt{2}} \right)^{\frac{1}{3}}$$

Evaluate Formula ↻

2) Radius of Truncated Tetrahedron Formulas ↻

2.1) Circumsphere Radius of Truncated Tetrahedron Formula ↻

Formula

$$r_c = \frac{l_e}{4} \cdot \sqrt{22}$$

Example with Units

$$11.726\text{ m} = \frac{10\text{ m}}{4} \cdot \sqrt{22}$$

Evaluate Formula ↻

2.2) Midsphere Radius of Truncated Tetrahedron Formula ↻

Formula

$$r_m = \frac{3}{4} \cdot \sqrt{2} \cdot l_e$$

Example with Units

$$10.6066\text{ m} = \frac{3}{4} \cdot \sqrt{2} \cdot 10\text{ m}$$

Evaluate Formula ↻



3) Surface Area of Truncated Tetrahedron Formulas

3.1) Total Surface Area of Truncated Tetrahedron Formula

Formula

$$TSA = 7 \cdot \sqrt{3} \cdot l_e^2$$

Example with Units

$$1212.4356\text{m}^2 = 7 \cdot \sqrt{3} \cdot 10\text{m}^2$$

Evaluate Formula 

4) Surface Volume Ratio of Truncated Tetrahedron Formulas

4.1) Surface to Volume Ratio of Truncated Tetrahedron Formula

Formula

$$R_{A/V} = \frac{84 \cdot \sqrt{3}}{23 \cdot \sqrt{2} \cdot l_e}$$

Example with Units

$$0.4473\text{m}^{-1} = \frac{84 \cdot \sqrt{3}}{23 \cdot \sqrt{2} \cdot 10\text{m}}$$

Evaluate Formula 

5) Tetrahedral Edge Length of Truncated Tetrahedron Formulas

5.1) Tetrahedral Edge Length of Truncated Tetrahedron Formula

Formula

$$l_{e(\text{Tetrahedron})} = 3 \cdot l_e$$

Example with Units

$$30\text{m} = 3 \cdot 10\text{m}$$

Evaluate Formula 

6) Volume of Truncated Tetrahedron Formulas

6.1) Volume of Truncated Tetrahedron Formula

Formula

$$V = \frac{23}{12} \cdot \sqrt{2} \cdot l_e^3$$

Example with Units

$$2710.576\text{m}^3 = \frac{23}{12} \cdot \sqrt{2} \cdot 10\text{m}^3$$





Evaluate Formula 



Variables used in list of Truncated Tetrahedron Formulas above












- l_e Edge Length of Truncated Tetrahedron (Meter)
- $l_e(\text{Tetrahedron})$ Tetrahedral Edge Length of Truncated Tetrahedron (Meter)
- $R_{A/V}$ Surface to Volume Ratio of Truncated Tetrahedron (1 per Meter)
- r_c Circumsphere Radius of Truncated Tetrahedron (Meter)
- r_m Midsphere Radius of Truncated Tetrahedron (Meter)
- **TSA** Total Surface Area of Truncated Tetrahedron (Square Meter)
- **V** Volume of Truncated Tetrahedron (Cubic Meter)

Constants, Functions, Measurements used in list of Truncated Tetrahedron Formulas 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 
- **Measurement: Reciprocal Length** in 1 per Meter (m⁻¹)
Reciprocal Length Unit Conversion 



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