



Truncated Tetrahedron Formulas

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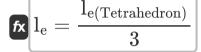


List of 9 Truncated Tetrahedron Formulas

Truncated Tetrahedron

Edge Length of Truncated Tetrahedron

1) Edge Length of Truncated Tetrahedron given Tetrahedral Edge Length



Open Calculator 🗗

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

2) Edge Length of Truncated Tetrahedron given Total Surface Area

$$ag{l_{
m e}} = \sqrt{rac{{
m TSA}}{7 \cdot \sqrt{3}}}$$

Open Calculator

$$ext{ex} \ 9.948584 ext{m} = \sqrt{rac{1200 ext{m}^2}{7 \cdot \sqrt{3}}}$$



Open Calculator 2

Open Calculator

Open Calculator



3) Edge Length of Truncated Tetrahedron given Volume

$$ho = \left(rac{12\cdot ext{V}}{23\cdot \sqrt{2}}
ight)^{rac{1}{3}}$$

$$= 2.986977 \mathrm{m} = \left(\frac{12 \cdot 2700 \mathrm{m}^3}{23 \cdot \sqrt{2}}\right)^{\frac{1}{3}}$$

Radius of Truncated Tetrahedron

4) Circumsphere Radius of Truncated Tetrahedron



fx
$$m r_c = rac{l_e}{4} \cdot \sqrt{22}$$

$$=$$
 11.72604 $=\frac{10m}{4} \cdot \sqrt{22}$

5) Midsphere Radius of Truncated Tetrahedron

$$\left|\mathbf{r}_{\mathrm{m}}
ight|=rac{3}{4}\cdot\sqrt{2}\cdot l_{\mathrm{e}}$$

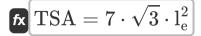
$$= 10.6066 \mathrm{m} = \frac{3}{4} \cdot \sqrt{2} \cdot 10 \mathrm{m}$$

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Surface Area of Truncated Tetrahedron

6) Total Surface Area of Truncated Tetrahedron

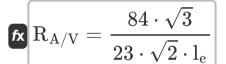


Open Calculator

 $\boxed{ 212.436 \text{m}^2 = 7 \cdot \sqrt{3} \cdot (10 \text{m})^2 }$

Surface Volume Ratio of Truncated Tetrahedron

7) Surface to Volume Ratio of Truncated Tetrahedron



Open Calculator

ex $0.447298 \mathrm{m}^{_{-1}} = rac{84 \cdot \sqrt{3}}{23 \cdot \sqrt{2} \cdot 10 \mathrm{m}}$

Tetrahedral Edge Length of Truncated Tetrahedron 🗗

8) Tetrahedral Edge Length of Truncated Tetrahedron



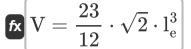
Open Calculator

 $\boxed{\mathbf{ex}} \ 30\mathrm{m} = 3 \cdot 10\mathrm{m}$



Volume of Truncated Tetrahedron

9) Volume of Truncated Tetrahedron



Open Calculator 🗗

$$\mathbf{ex} \left[2710.576 \mathrm{m}^{_3} = rac{23}{12} \cdot \sqrt{2} \cdot (10 \mathrm{m})^3
ight]$$



Variables Used

- le Edge Length of Truncated Tetrahedron (Meter)
- I_e(Tetrahedron) Tetrahedral Edge Length of Truncated Tetrahedron (Meter)
- R_{A/V} Surface to Volume Ratio of Truncated Tetrahedron (1 per Meter)
- rc Circumsphere Radius of Truncated Tetrahedron (Meter)
- rm 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

- Function: 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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