

Important Right Square Pyramid Formulas PDF



Formulas
Examples
with Units

List of 16 Important Right Square Pyramid Formulas

1) Edge Length of Right Square Pyramid Formulas ↻

1.1) Edge Length of Base of Right Square Pyramid given Slant Height Formula ↻

Formula

$$l_{e(\text{Base})} = 2 \cdot \sqrt{h_{\text{slant}}^2 - h^2}$$

Example with Units

$$11.1355 \text{ m} = 2 \cdot \sqrt{16 \text{ m}^2 - 15 \text{ m}^2}$$

Evaluate Formula ↻

1.2) Edge Length of Base of Right Square Pyramid given Volume Formula ↻

Formula

$$l_{e(\text{Base})} = \sqrt{\frac{3 \cdot V}{h}}$$

Example with Units

$$10 \text{ m} = \sqrt{\frac{3 \cdot 500 \text{ m}^3}{15 \text{ m}}}$$

Evaluate Formula ↻

2) Height of Right Square Pyramid Formulas ↻

2.1) Height of Right Square Pyramid given Slant Height Formula ↻

Formula

$$h = \sqrt{h_{\text{slant}}^2 - \frac{l_{e(\text{Base})}^2}{4}}$$

Example with Units

$$15.1987 \text{ m} = \sqrt{16 \text{ m}^2 - \frac{10 \text{ m}^2}{4}}$$

Evaluate Formula ↻

2.2) Height of Right Square Pyramid given Volume Formula ↻

Formula

$$h = \frac{3 \cdot V}{l_{e(\text{Base})}^2}$$

Example with Units

$$15 \text{ m} = \frac{3 \cdot 500 \text{ m}^3}{10 \text{ m}^2}$$

Evaluate Formula ↻

2.3) Slant Height of Right Square Pyramid Formula ↻

Formula

$$h_{\text{slant}} = \sqrt{h^2 + \frac{l_{e(\text{Base})}^2}{4}}$$

Example with Units

$$15.8114 \text{ m} = \sqrt{15 \text{ m}^2 + \frac{10 \text{ m}^2}{4}}$$

Evaluate Formula ↻



2.4) Slant Height of Right Square Pyramid given Volume Formula ↻

Formula

$$h_{\text{slant}} = \sqrt{\frac{l_{\text{e(Base)}}^2}{4} + \left(\frac{3 \cdot V}{l_{\text{e(Base)}}^2}\right)^2}$$

Example with Units

$$15.8114\text{m} = \sqrt{\frac{10\text{m}^2}{4} + \left(\frac{3 \cdot 500\text{m}^3}{10\text{m}^2}\right)^2}$$

Evaluate Formula ↻

3) Lateral Edge Length of Right Square Pyramid Formulas ↻

3.1) Lateral Edge Length of Right Square Pyramid Formula ↻

Formula

$$l_{\text{e(Lateral)}} = \sqrt{h^2 + \frac{l_{\text{e(Base)}}^2}{2}}$$

Example with Units

$$16.5831\text{m} = \sqrt{15\text{m}^2 + \frac{10\text{m}^2}{2}}$$

Evaluate Formula ↻

3.2) Lateral Edge Length of Right Square Pyramid given Slant Height Formula ↻

Formula

$$l_{\text{e(Lateral)}} = \sqrt{\frac{l_{\text{e(Base)}}^2}{4} + h_{\text{slant}}^2}$$

Example with Units

$$16.7631\text{m} = \sqrt{\frac{10\text{m}^2}{4} + 16\text{m}^2}$$

Evaluate Formula ↻

3.3) Lateral Edge Length of Right Square Pyramid given Volume Formula ↻

Formula

$$l_{\text{e(Lateral)}} = \sqrt{\frac{l_{\text{e(Base)}}^2}{2} + \left(\frac{3 \cdot V}{l_{\text{e(Base)}}^2}\right)^2}$$

Example with Units

$$16.5831\text{m} = \sqrt{\frac{10\text{m}^2}{2} + \left(\frac{3 \cdot 500\text{m}^3}{10\text{m}^2}\right)^2}$$

Evaluate Formula ↻

4) Surface Area of Right Square Pyramid Formulas ↻

4.1) Base Area of Right Square Pyramid Formula ↻

Formula

$$A_{\text{Base}} = l_{\text{e(Base)}}^2$$

Example with Units

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

Evaluate Formula ↻

4.2) Lateral Surface Area of Right Square Pyramid Formula ↻

Formula

$$LSA = l_{\text{e(Base)}} \cdot \sqrt{l_{\text{e(Base)}}^2 + (4 \cdot h^2)}$$

Example with Units

$$316.2278\text{m}^2 = 10\text{m} \cdot \sqrt{10\text{m}^2 + (4 \cdot 15\text{m}^2)}$$

Evaluate Formula ↻

4.3) Lateral Surface Area of Right Square Pyramid given Slant Height Formula ↻

Formula

$$LSA = 2 \cdot l_{\text{e(Base)}} \cdot h_{\text{slant}}$$

Example with Units

$$320\text{m}^2 = 2 \cdot 10\text{m} \cdot 16\text{m}$$

Evaluate Formula ↻



4.4) Total Surface Area of Right Square Pyramid Formula

Formula

$$TSA = l_{e(Base)}^2 + \left(l_{e(Base)} \cdot \sqrt{l_{e(Base)}^2 + (4 \cdot h^2)} \right)$$

Evaluate Formula 

Example with Units

$$416.2278 \text{ m}^2 = 10 \text{ m}^2 + \left(10 \text{ m} \cdot \sqrt{10 \text{ m}^2 + (4 \cdot 15 \text{ m}^2)} \right)$$

4.5) Total Surface Area of Right Square Pyramid given Slant Height Formula

Formula

$$TSA = l_{e(Base)}^2 + (2 \cdot l_{e(Base)} \cdot h_{\text{slant}})$$

Example with Units

$$420 \text{ m}^2 = 10 \text{ m}^2 + (2 \cdot 10 \text{ m} \cdot 16 \text{ m})$$

Evaluate Formula 

5) Volume of Right Square Pyramid Formulas

5.1) Volume of Right Square Pyramid Formula

Formula

$$V = \frac{l_{e(Base)}^2 \cdot h}{3}$$

Example with Units

$$500 \text{ m}^3 = \frac{10 \text{ m}^2 \cdot 15 \text{ m}}{3}$$

Evaluate Formula 

5.2) Volume of Right Square Pyramid given Slant Height Formula

Formula

$$V = \frac{l_{e(Base)}^2 \cdot \sqrt{h_{\text{slant}}^2 - \frac{l_{e(Base)}^2}{4}}}{3}$$

Example with Units

$$506.6228 \text{ m}^3 = \frac{10 \text{ m}^2 \cdot \sqrt{16 \text{ m}^2 - \frac{10 \text{ m}^2}{4}}}{3}$$

Evaluate Formula 



Variables used in list of Right Square Pyramid Formulas above

- **A_{Base}** Base Area of Right Square Pyramid (Square Meter)
- **h** Height of Right Square Pyramid (Meter)
- **h_{slant}** Slant Height of Right Square Pyramid (Meter)
- **l_{e(Base)}** Edge Length of Base of Right Square Pyramid (Meter)
- **l_{e(Lateral)}** Lateral Edge Length of Right Square Pyramid (Meter)
- **LSA** Lateral Surface Area of Right Square Pyramid (Square Meter)
- **TSA** Total Surface Area of Right Square Pyramid (Square Meter)
- **V** Volume of Right Square Pyramid (Cubic Meter)

Constants, Functions, Measurements used in list of Right Square Pyramid 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 



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