Important Formulas of Frame PDF

Formulas
Examples
with Units

List of 14
Important Formulas of Frame

1) Area of Frame Formula

Evaluate Formula

Formula

$$A = \left(l_{Outer} \cdot w_{Outer} \right) - \left(l_{Inner} \cdot w_{Inner} \right)$$

Example with Units

$$126\,\text{m}^2 = \left(15\,\text{m} \cdot 12\,\text{m} \right) - \left(9\,\text{m} \cdot 6\,\text{m} \right)$$

2) Area of Frame given Inner Length, Inner Width and Thickness Formula

Evaluate Formula

Formula

$$A = \left(\left(l_{Inner} + \left(2 \cdot t \right) \right) \cdot \left(w_{Inner} + \left(2 \cdot t \right) \right) \right) - \left(l_{Inner} \cdot w_{Inner} \right)$$

Example with Units

$$126\,\text{m}^2 = \left(\left(9\,\text{m} + \left(2 \cdot 3\,\text{m} \right) \right) \cdot \left(6\,\text{m} + \left(2 \cdot 3\,\text{m} \right) \right) \right) - \left(9\,\text{m} \cdot 6\,\text{m} \right)$$

3) Area of Frame given Outer Length, Outer Width and Thickness Formula

Evaluate Formula

Formula

$$A = \left(l_{Outer} \cdot w_{Outer} \right) - \left(\left(l_{Outer} - \left(2 \cdot t \right) \right) \cdot \left(w_{Outer} - \left(2 \cdot t \right) \right) \right)$$

Example with Units

$$126\,\text{m}^2 = \left(15\,\text{m} \cdot 12\,\text{m} \right) - \left(\left(15\,\text{m} - \left(2 \cdot 3\,\text{m} \right) \right) \cdot \left(12\,\text{m} - \left(2 \cdot 3\,\text{m} \right) \right) \right)$$

4) Inner Length of Frame Formula

Evaluate Formula

Formula

$$l_{Inner} = l_{Outer} - \left(2 \cdot t \right)$$

Example with Units

$$9\,\text{m} = 15\,\text{m} - \left(2 \cdot 3\,\text{m} \right)$$

5) Inner Length of Frame given Outer Length and Vertex Diagonal Formula

Evaluate Formula

Formula

$$l_{Inner} = l_{Outer} - \left(\sqrt{2} \cdot d_{Vertex} \right)$$

Example with Units

$$9.3431\,\text{m} = 15\,\text{m} - \left(\sqrt{2} \cdot 4\,\text{m} \right)$$

6) Inner Width of Frame Formula

Evaluate Formula

Formula

$$w_{Inner} = w_{Outer} - \left(2 \cdot t \right)$$

Example with Units

$$6\,\text{m} = 12\,\text{m} - \left(2 \cdot 3\,\text{m} \right)$$

7) Outer Length of Frame Formula

Evaluate Formula

Formula

$$l_{Outer} = l_{Inner} + (2 \cdot t)$$

Example with Units

$$15\,\text{m} = 9\,\text{m} + (2 \cdot 3\,\text{m})$$

8) Outer Length of Frame given Area, Inner Length, Inner and Outer Widths Formula

Evaluate Formula

Formula

$$l_{Outer} = \frac{A + (l_{Inner} \cdot w_{Inner})}{w_{Outer}}$$

Example with Units

$$14.9167\,\text{m} = \frac{125\,\text{m}^2 + (9\,\text{m} \cdot 6\,\text{m})}{12\,\text{m}}$$

9) Outer Width of Frame Formula

Evaluate Formula

Formula

$$w_{Outer} = w_{Inner} + (2 \cdot t)$$

Example with Units

$$12\,\text{m} = 6\,\text{m} + (2 \cdot 3\,\text{m})$$

10) Perimeter of Frame Formula

Evaluate Formula

Formula

$$P = 2 \cdot (l_{Outer} + l_{Inner} + w_{Outer} + w_{Inner})$$

Example with Units

$$84\,\text{m} = 2 \cdot (15\,\text{m} + 9\,\text{m} + 12\,\text{m} + 6\,\text{m})$$

11) Perimeter of Frame given Inner Length and Outer Width Formula

Evaluate Formula

Formula

$$P = 4 \cdot (l_{Inner} + w_{Outer})$$

Example with Units

$$84\,\text{m} = 4 \cdot (9\,\text{m} + 12\,\text{m})$$

12) Thickness of Frame given Inner and Outer Lengths Formula

Evaluate Formula

Formula

$$t = \frac{l_{Outer} - l_{Inner}}{2}$$

Example with Units

$$3\,\text{m} = \frac{15\,\text{m} - 9\,\text{m}}{2}$$

13) Thickness of Frame given Inner and Outer Widths Formula

Evaluate Formula

Formula

$$t = \frac{w_{Outer} - w_{Inner}}{2}$$

Example with Units

$$3\,\text{m} = \frac{12\,\text{m} - 6\,\text{m}}{2}$$

14) Vertex Diagonal of Frame Formula

Evaluate Formula

Formula

$$d_{Vertex} = \sqrt{2} \cdot t$$

Example with Units

$$4.2426\,\text{m} = \sqrt{2} \cdot 3\,\text{m}$$

Variables used in list of Important Formulas of Frame above

- **A** Area of Frame *(Square Meter)*
- d_{Vertex} Vertex Diagonal of Frame *(Meter)*
- l_{Inner} Inner Length of Frame *(Meter)*
- l_{Outer} Outer Length of Frame *(Meter)*
- **P** Perimeter of Frame *(Meter)*
- **t** Thickness of Frame *(Meter)*
- w_{Inner} Inner Width of Frame *(Meter)*
- w_{Outer} Outer Width of Frame *(Meter)*

Constants, Functions, Measurements used in list of Important Formulas of Frame 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: **Area** in Square Meter (m²)
  Area Unit Conversion

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