

Important Open Frame Formulas PDF



Formulas Examples with Units

List of 16 Important Open Frame Formulas

1) Area & Perimeter of Open Frame Formulas

1.1) Area of Open Frame Formula

Formula

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

Example with Units

$$78\text{m}^2 = (2 \cdot 3\text{m} \cdot 9\text{m}) + (3\text{m} \cdot 8\text{m})$$

Evaluate Formula 

1.2) Perimeter of Open Frame Formula

Formula

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

Example with Units

$$58\text{m} = 14\text{m} + 8\text{m} + (2 \cdot (3\text{m} + 9\text{m} + 6\text{m}))$$

Evaluate Formula 

2) Inner Edges of Open Frame Formulas

2.1) Inner Height of Open Frame Formula

Formula

$$h_{\text{Inner}} = h_{\text{Outer}} - t$$

Example with Units

$$6\text{m} = 9\text{m} - 3\text{m}$$

Evaluate Formula 

2.2) Inner Height of Open Frame given Perimeter Formula

Formula

$$h_{\text{Inner}} = \frac{P - w_{\text{Outer}} - w_{\text{Inner}} - (2 \cdot t) - (2 \cdot h_{\text{Outer}})}{2}$$

Example with Units

$$7\text{m} = \frac{60\text{m} - 14\text{m} - 8\text{m} - (2 \cdot 3\text{m}) - (2 \cdot 9\text{m})}{2}$$

Evaluate Formula 

2.3) Inner Width of Open Frame Formula

Formula

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

Example with Units

$$8\text{m} = 14\text{m} - (2 \cdot 3\text{m})$$

Evaluate Formula 



2.4) Inner Width of Open Frame given Area Formula ↻

Formula

$$w_{\text{Inner}} = \frac{A - (2 \cdot t \cdot h_{\text{Outer}})}{t}$$

Example with Units

$$8.6667 \text{ m} = \frac{80 \text{ m}^2 - (2 \cdot 3 \text{ m} \cdot 9 \text{ m})}{3 \text{ m}}$$

Evaluate Formula ↻

2.5) Inner Width of Open Frame given Perimeter Formula ↻

Formula

$$w_{\text{Inner}} = P - (w_{\text{Outer}} + (2 \cdot (t + h_{\text{Outer}} + h_{\text{Inner}})))$$

Example with Units

$$10 \text{ m} = 60 \text{ m} - (14 \text{ m} + (2 \cdot (3 \text{ m} + 9 \text{ m} + 6 \text{ m})))$$

Evaluate Formula ↻

3) Outer Edges of Open Frame Formulas ↻

3.1) Outer Height of Open Frame Formula ↻

Formula

$$h_{\text{Outer}} = t + h_{\text{Inner}}$$

Example with Units

$$9 \text{ m} = 3 \text{ m} + 6 \text{ m}$$

Evaluate Formula ↻

3.2) Outer Height of Open Frame given Area Formula ↻

Formula

$$h_{\text{Outer}} = \frac{A - (t \cdot w_{\text{Inner}})}{2 \cdot t}$$

Example with Units

$$9.3333 \text{ m} = \frac{80 \text{ m}^2 - (3 \text{ m} \cdot 8 \text{ m})}{2 \cdot 3 \text{ m}}$$

Evaluate Formula ↻

3.3) Outer Height of Open Frame given Perimeter Formula ↻

Formula

$$h_{\text{Outer}} = \frac{P - w_{\text{Outer}} - w_{\text{Inner}} - (2 \cdot t) - (2 \cdot h_{\text{Inner}})}{2}$$

Example with Units

$$10 \text{ m} = \frac{60 \text{ m} - 14 \text{ m} - 8 \text{ m} - (2 \cdot 3 \text{ m}) - (2 \cdot 6 \text{ m})}{2}$$

Evaluate Formula ↻

3.4) Outer width of Open Frame Formula ↻

Formula

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

Example with Units

$$14 \text{ m} = (2 \cdot 3 \text{ m}) + 8 \text{ m}$$

Evaluate Formula ↻



3.5) Outer Width of Open Frame given Perimeter Formula

Formula

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

Evaluate Formula 

Example with Units

$$16\text{ m} = 60\text{ m} - \left(8\text{ m} + \left(2 \cdot \left(3\text{ m} + 9\text{ m} + 6\text{ m} \right) \right) \right)$$

4) Thickness of Open Frame Formulas

4.1) Thickness of Open Frame Formula

Formula

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

Example with Units

$$3\text{ m} = \frac{14\text{ m} - 8\text{ m}}{2}$$

Evaluate Formula 

4.2) Thickness of Open Frame given Area Formula

Formula

$$t = \frac{A}{\left(2 \cdot h_{\text{Outer}} \right) + w_{\text{Inner}}}$$

Example with Units

$$3.0769\text{ m} = \frac{80\text{ m}^2}{\left(2 \cdot 9\text{ m} \right) + 8\text{ m}}$$

Evaluate Formula 

4.3) Thickness of Open Frame given Outer and Inner Height Formula

Formula

$$t = h_{\text{Outer}} - h_{\text{Inner}}$$

Example with Units

$$3\text{ m} = 9\text{ m} - 6\text{ m}$$

Evaluate Formula 

4.4) Thickness of Open Frame given Perimeter Formula

Formula

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

Evaluate Formula 

Example with Units



$$4\text{ m} = \frac{60\text{ m} - 14\text{ m} - 8\text{ m} - \left(2 \cdot 9\text{ m} \right) - \left(2 \cdot 6\text{ m} \right)}{2}$$



Variables used in list of Open Frame Formulas above

- **A** Area of Open Frame (Square Meter)
- **h_{Inner}** Inner Height of Open Frame (Meter)
- **h_{Outer}** Outer Height of Open Frame (Meter)
- **P** Perimeter of Open Frame (Meter)
- **t** Thickness of Open Frame (Meter)
- **w_{Inner}** Inner Width of Open Frame (Meter)
- **w_{Outer}** Outer Width of Open Frame (Meter)


Constants, Functions, Measurements used in list of Open Frame Formulas above

- **Measurement: Length** in Meter (m)
Length Unit Conversion 
- **Measurement: Area** in Square Meter (m²)
Area Unit Conversion 









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