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Open Frame Formulas

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List of 16 Open Frame Formulas

Open Frame

Area & Perimeter of Open Frame

1) Area of Open Frame

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

ex $78m^2 = (2 \cdot 3m \cdot 9m) + (3m \cdot 8m)$

2) Perimeter of Open Frame

fx Open Calculator

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

ex $58m = 14m + 8m + (2 \cdot (3m + 9m + 6m))$

Inner Edges of Open Frame

3) Inner Height of Open Frame

fx $h_{Inner} = h_{Outer} - t$ Open Calculator

ex $6m = 9m - 3m$

4) Inner Height of Open Frame given Perimeter

Open Calculator

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

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

5) Inner Width of Open Frame

Open Calculator

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

ex $$8m = 14m - (2 \cdot 3m)$$

6) Inner Width of Open Frame given Area

Open Calculator

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

ex $$8.666667m = \frac{80m^2 - (2 \cdot 3m \cdot 9m)}{3m}$$

7) Inner Width of Open Frame given Perimeter

Open Calculator

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

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

Outer Edges of Open Frame

8) Outer Height of Open Frame

Open Calculator

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

ex $9m = 3m + 6m$

9) Outer Height of Open Frame given Area

Open Calculator

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

ex $$9.333333m = \frac{80m^2 - (3m \cdot 8m)}{2 \cdot 3m}$$

10) Outer Height of Open Frame given Perimeter

Open Calculator

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

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

11) Outer width of Open Frame

Open Calculator

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

ex $14m = (2 \cdot 3m) + 8m$

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12) Outer Width of Open Frame given Perimeter

Open Calculator

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

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

Thickness of Open Frame

13) Thickness of Open Frame

Open Calculator

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

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

14) Thickness of Open Frame given Area

Open Calculator

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

ex $3.076923\text{m} = \frac{80\text{m}^2}{(2 \cdot 9\text{m}) + 8\text{m}}$

15) Thickness of Open Frame given Outer and Inner Height

Open Calculator

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

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

16) Thickness of Open Frame given Perimeter

Open Calculator

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

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

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Variables Used

- **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)*

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Constants, Functions, Measurements used

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

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- Concave Regular Hexagon Formulas
- Concave Regular Pentagon Formulas
- Crossed Rectangle Formulas
- Cut Rectangle Formulas
- Cyclic Quadrilateral Formulas
- Cycloid Formulas
- Decagon Formulas
- Dodecagon Formulas
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- H Shape Formulas
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