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List of 12 Grid Formulas

Grid

Area and Perimeter of Grid

1) Area of Grid

fx

Open Calculator 

$$A = (l_{\text{Rectangle}} \cdot w_{\text{Rectangle}}) - (N_1 \cdot N_w \cdot l_{e(\text{Hole})}^2)$$

$$\text{ex } 804\text{m}^2 = (33\text{m} \cdot 28\text{m}) - (6 \cdot 5 \cdot (2\text{m})^2)$$

2) Perimeter of Grid

fx

Open Calculator 

$$P = (2 \cdot (l_{\text{Rectangle}} + w_{\text{Rectangle}})) + (4 \cdot N_1 \cdot N_w \cdot l_{e(\text{Hole})})$$

$$\text{ex } 362\text{m} = (2 \cdot (33\text{m} + 28\text{m})) + (4 \cdot 6 \cdot 5 \cdot 2\text{m})$$



Bar Thickness of Grid

3) Bar Thickness of Grid given Rectangle Length and Edge Length of Hole

$$\text{fx } t_{\text{Bar}} = \frac{l_{\text{Rectangle}} - (N_1 \cdot l_{e(\text{Hole})})}{N_1 + 1}$$

[Open Calculator !\[\]\(a03a7eb2f4046e1d3c76772003e549ea_img.jpg\)](#)

$$\text{ex } 3\text{m} = \frac{33\text{m} - (6 \cdot 2\text{m})}{6 + 1}$$

4) Bar Thickness of Grid given Rectangle Width and Edge Length of Hole

$$\text{fx } t_{\text{Bar}} = \frac{w_{\text{Rectangle}} - (N_w \cdot l_{e(\text{Hole})})}{N_w + 1}$$

[Open Calculator !\[\]\(5361750c22c4e047a52f4eac1ec2d4cc_img.jpg\)](#)

$$\text{ex } 3\text{m} = \frac{28\text{m} - (5 \cdot 2\text{m})}{5 + 1}$$

Edge Length of Grid Hole

5) Edge Length of Hole in Grid given Rectangle Length and Number of Holes in Length

$$\text{fx } l_{e(\text{Hole})} = \frac{l_{\text{Rectangle}} - ((N_1 + 1) \cdot t_{\text{Bar}})}{N_1}$$

[Open Calculator !\[\]\(7d1d6890825e83a6a4a51febe2dcc7f3_img.jpg\)](#)

$$\text{ex } 2\text{m} = \frac{33\text{m} - ((6 + 1) \cdot 3\text{m})}{6}$$



6) Edge Length of Hole in Grid given Rectangle Width and Number of Holes in Width

$$\text{fx } l_{e(\text{Hole})} = \frac{w_{\text{Rectangle}} - ((N_w + 1) \cdot t_{\text{Bar}})}{N_w}$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

$$\text{ex } 2\text{m} = \frac{28\text{m} - ((5 + 1) \cdot 3\text{m})}{5}$$

Number of Holes in Grid

7) Number of Holes in Length of Grid

$$\text{fx } N_l = \frac{l_{\text{Rectangle}} - t_{\text{Bar}}}{l_{e(\text{Hole})} + t_{\text{Bar}}}$$

[Open Calculator !\[\]\(aa53ad6fea213b8b2226d3077e30533a_img.jpg\)](#)

$$\text{ex } 6 = \frac{33\text{m} - 3\text{m}}{2\text{m} + 3\text{m}}$$

8) Number of Holes in Width of Grid

$$\text{fx } N_w = \frac{w_{\text{Rectangle}} - t_{\text{Bar}}}{l_{e(\text{Hole})} + t_{\text{Bar}}}$$

[Open Calculator !\[\]\(626ce8ac21792b9405bfddfea8e0c96a_img.jpg\)](#)

$$\text{ex } 5 = \frac{28\text{m} - 3\text{m}}{2\text{m} + 3\text{m}}$$



Rectangle Measures of Grid

9) Rectangle Length of Grid

$$\text{fx } l_{\text{Rectangle}} = (N_1 \cdot l_{e(\text{Hole})}) + ((N_1 + 1) \cdot t_{\text{Bar}})$$

[Open Calculator !\[\]\(74d4806277d7e73349d8e8c0897931e9_img.jpg\)](#)

$$\text{ex } 33\text{m} = (6 \cdot 2\text{m}) + ((6 + 1) \cdot 3\text{m})$$

10) Rectangle Length of Grid given Perimeter and Width of Rectangle

$$\text{fx}$$
[Open Calculator !\[\]\(8bba887393ca45b761e5cb49e755e762_img.jpg\)](#)

$$l_{\text{Rectangle}} = \frac{P - (2 \cdot w_{\text{Rectangle}}) - (4 \cdot N_1 \cdot N_w \cdot l_{e(\text{Hole})})}{2}$$

$$\text{ex } 32\text{m} = \frac{360\text{m} - (2 \cdot 28\text{m}) - (4 \cdot 6 \cdot 5 \cdot 2\text{m})}{2}$$

11) Rectangle Width of Grid

$$\text{fx}$$
[Open Calculator !\[\]\(799877f5c2f906134441300079881630_img.jpg\)](#)

$$w_{\text{Rectangle}} = (N_w \cdot l_{e(\text{Hole})}) + ((N_w + 1) \cdot t_{\text{Bar}})$$

$$\text{ex } 28\text{m} = (5 \cdot 2\text{m}) + ((5 + 1) \cdot 3\text{m})$$



12) Rectangle Width of Grid given Perimeter and Length of Rectangle

fx**Open Calculator **

$$W_{\text{Rectangle}} = \frac{P - (2 \cdot l_{\text{Rectangle}}) - (4 \cdot N_l \cdot N_w \cdot l_{e(\text{Hole})})}{2}$$

ex

$$27\text{m} = \frac{360\text{m} - (2 \cdot 33\text{m}) - (4 \cdot 6 \cdot 5 \cdot 2\text{m})}{2}$$





Variables Used

- **A** Area of Grid (Square Meter)
- **$l_{\text{e(Hole)}}$** Edge Length of Grid Hole (Meter)
- **$l_{\text{Rectangle}}$** Length of Grid Rectangle (Meter)
- **N_l** Number of Holes in Length of Grid
- **N_w** Number of Holes in Width of Grid
- **P** Perimeter of Grid (Meter)
- **t_{Bar}** Bar Thickness of Grid (Meter)
- **$w_{\text{Rectangle}}$** Width of Grid Rectangle (Meter)



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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