Important House Shape Formulas PDF

Formulas
Examples
with Units

List of 10
Important House Shape Formulas

1) Area of House Shape Formula

Evaluate Formula

Formula

$$A = \left(l_{Base} \cdot h_{Wall} \right) + \left(h_{Roof} \cdot \frac{l_{Base}}{2} \right)$$

Example with Units

$$172.5\,\text{m}^2 = \left(15\,\text{m} \cdot 10\,\text{m} \right) + \left(3\,\text{m} \cdot \frac{15\,\text{m}}{2} \right)$$

2) Base Length of House Shape given Perimeter Formula

Evaluate Formula

Formula

$$l_{Base} = P - \left(2 \cdot h_{Wall} \right) - \left(2 \cdot S_{Roof} \right)$$

Example with Units

$$14\,\text{m} = 50\,\text{m} - \left(2 \cdot 10\,\text{m} \right) - \left(2 \cdot 8\,\text{m} \right)$$

3) Diagonal of House Shape Formula

Evaluate Formula

Formula

$$d = \sqrt{\left(\frac{l_{Base}}{2} \right)^2 + h^2}$$

Example with Units

$$15.0083\,\text{m} = \sqrt{\left(\frac{15\,\text{m}}{2} \right)^2 + 13\,\text{m}^2}$$

4) Diagonal of Rectangle of House Shape Formula

Evaluate Formula

Formula

$$d_{Rectangle} = \sqrt{l_{Base}^2 + h_{Wall}^2}$$

Example with Units

$$18.0278\,\text{m} = \sqrt{15\,\text{m}^2 + 10\,\text{m}^2}$$

5) Height of House Shape Formula

Evaluate Formula

Formula

$$h = h_{Roof} + h_{Wall}$$

Example with Units

$$13\,\text{m} = 3\,\text{m} + 10\,\text{m}$$

6) Perimeter of House Shape Formula

Evaluate Formula

Formula

$$P = l_{Base} + \left(2 \cdot h_{Wall} \right) + \left(2 \cdot S_{Roof} \right)$$

Example with Units

$$51\,\text{m} = 15\,\text{m} + \left(2 \cdot 10\,\text{m} \right) + \left(2 \cdot 8\,\text{m} \right)$$

7) Roof Height of House Shape Formula

Evaluate Formula

Formula

$$h_{Roof} = \sqrt{\frac{\left(4 \cdot S_{Roof}^{2}\right) - l_{Base}^{2}}{4}}$$

Example with Units

$$2.7839\,\text{m} = \sqrt{\frac{\left(4 \cdot 8\,\text{m}^{2}\right) - 15\,\text{m}^{2}}{4}}$$

8) Roof Side of House Shape given Perimeter Formula

Evaluate Formula

Formula

$$S_{Roof} = \frac{P - l_{Base} - \left(2 \cdot h_{Wall}\right)}{2}$$

Example with Units

$$7.5\,\text{m} = \frac{50\,\text{m} - 15\,\text{m} - \left(2 \cdot 10\,\text{m}\right)}{2}$$

9) Slope of House Shape Formula

Evaluate Formula

Formula

$$\angle_{Slope} = arccos\left(\frac{l_{Base}}{2 \cdot S_{Roof}}\right)$$

Example with Units

$$20.3641° = arccos\left(\frac{15\,\text{m}}{2 \cdot 8\,\text{m}}\right)$$

10) Wall Height of House Shape given Perimeter Formula

Evaluate Formula

Formula

$$h_{Wall} = \frac{P - l_{Base} - \left(2 \cdot S_{Roof}\right)}{2}$$

Example with Units

$$9.5\,\text{m} = \frac{50\,\text{m} - 15\,\text{m} - \left(2 \cdot 8\,\text{m}\right)}{2}$$

Variables used in list of House Shape Formulas above

- $\angle_{Slope}$ Slope Angle of House Shape *(Degree)*
- **A** Area of House Shape *(Square Meter)*
- **d** Diagonal of House Shape *(Meter)*
- $d_{Rectangle}$ Diagonal of Rectangle of House Shape *(Meter)*
- **h** Height of House Shape *(Meter)*
- h_{Roof} Roof Height of House Shape *(Meter)*
- h_{Wall} Wall Height of House Shape *(Meter)*
- l_{Base} Base Length of House Shape *(Meter)*
- **P** Perimeter of House Shape *(Meter)*
- S_{Roof} Roof Side of House Shape *(Meter)*

Constants, Functions, Measurements used in list of House Shape Formulas above

- Functions: **arcos**, arcos(Number)
  Arccosine function, is the inverse function of the cosine function. It is the function that takes a ratio as an input and returns the angle whose cosine is equal to that ratio.
- Functions: **cos**, cos(Angle)
  Cosine of an angle is the ratio of the side adjacent to the angle to the hypotenuse of the triangle.
- 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
- Measurement: **Angle** in Degree (°)
  Angle Unit Conversion

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