Important Half Square Kite Formulas PDF

Formulas
Examples
with Units

List of 12
Important Half Square Kite Formulas

1) Angle, Area and Perimeter of Half Square Kite Formulas

1.1) Area of Half Square Kite Formula

Evaluate Formula

Formula

$$A = \frac{S_{Square}^{2} + \left(d_{s(Non\ Square)} \cdot d_{Square} \right)}{2}$$

Example with Units

$$44\,\text{m}^2 = \frac{5\,\text{m}^{2} + \left(9\,\text{m} \cdot 7\,\text{m} \right)}{2}$$

1.2) Perimeter of Half Square Kite Formula

Evaluate Formula

Formula

$$P = 2 \cdot \left(S_{Square} + S_{Non\ Square} \right)$$

Example with Units

$$30\,\text{m} = 2 \cdot \left(5\,\text{m} + 10\,\text{m} \right)$$

1.3) Stretched Corner Angle of Right Angle in Half Square Kite Formula

Evaluate Formula

Formula

$$\angle_{Stretched\ Corner} = \arccos\left(\frac{\left(2 \cdot S_{Non\ Square}^{2} \right) - d_{Square}^{2}}{2 \cdot S_{Non\ Square}^{2}} \right)$$

Example with Units

$$40.9746° = \arccos\left(\frac{\left(2 \cdot 10\,\text{m}^{2} \right) - 7\,\text{m}^{2}}{2 \cdot 10\,\text{m}^{2}} \right)$$

1.4) Symmetry Angle of Half Square Kite Formula

Evaluate Formula

Formula

$$\angle_{Symmetry} = \frac{\frac{3 \cdot \pi}{2} - \angle_{Stretched\ Corner}}{2}$$

Example with Units

$$115° = \frac{\frac{3 \cdot 3.1416}{2} - 40°}{2}$$

2) Radius and Diagonal of Half Square Kite Formulas

2.1) Inradius of Half Square Kite Formula

Evaluate Formula

Formula

$$r_i = \frac{2 \cdot A}{P}$$

Example with Units

$$3\,\text{m} = \frac{2 \cdot 45\,\text{m}^2}{30\,\text{m}}$$

2.2) Square Diagonal of Half Square Kite Formula

Evaluate Formula

Formula

$$d_{Square} = S_{Square} \cdot \sqrt{2}$$

Example with Units

$$7.0711\,\text{m} = 5\,\text{m} \cdot \sqrt{2}$$

2.3) Symmetry Diagonal of Half Square Kite Formula

Evaluate Formula

Formula

$$d_{Symmetry} = \sqrt{S_{Square}^2 + S_{Non\ Square}^2 - \left(2 \cdot S_{Square} \cdot S_{Non\ Square} \cdot \cos\left(\angle_{Symmetry}\right)\right)}$$

Example with Units

$$12.933\,\text{m} = \sqrt{5\,\text{m}^2 + 10\,\text{m}^2 - \left(2 \cdot 5\,\text{m} \cdot 10\,\text{m} \cdot \cos\left(115°\right)\right)}$$

3) Side and Section of Half Square Kite Formulas

3.1) Non Square Side of Half Square Kite given Perimeter Formula

Evaluate Formula

Formula

$$S_{Non\ Square} = \frac{P}{2} - S_{Square}$$

Example with Units

$$10\,\text{m} = \frac{30\,\text{m}}{2} - 5\,\text{m}$$

3.2) Non Square Sided Symmetry Diagonal Section of Half Square Kite Formula

Evaluate Formula

Formula

$$d_{s(Non\ Square)} = d_{Symmetry} - d_{s(Square)}$$

Example with Units

$$9\,\text{m} = 13\,\text{m} - 4\,\text{m}$$

3.3) Square Side of Half Square Kite given Perimeter Formula

Evaluate Formula

Formula

$$S_{Square} = \frac{P}{2} - S_{Non\ Square}$$

Example with Units

$$5\,\text{m} = \frac{30\,\text{m}}{2} - 10\,\text{m}$$

3.4) Square Side of Half Square Kite given Square Diagonal Formula

Evaluate Formula

Formula

$$S_{Square} = \frac{d_{Square}}{\sqrt{2}}$$

Example with Units

$$4.9497\,\text{m} = \frac{7\,\text{m}}{\sqrt{2}}$$

3.5) Square Sided Symmetry Diagonal Section of Half Square Kite Formula

Evaluate Formula

Formula

$$d_{s(Square)} = \frac{S_{Square}}{\sqrt{2}}$$

Example with Units

$$3.5355\,\text{m} = \frac{5\,\text{m}}{\sqrt{2}}$$

Variables used in list of Half Square Kite Formulas above

- $\angle_{\text{Stretched Corner}}$ Stretched Corner Angle of Half Square Kite *(Degree)*
- $\angle_{\text{Symmetry}}$ Symmetry Angle of Half Square Kite *(Degree)*
- A Area of Half Square Kite *(Square Meter)*
- $d_{s(\text{Non Square})}$ Non Square Sided Symmetry Diagonal Section of HSK *(Meter)*
- $d_{s(\text{Square})}$ Square Sided Symmetry Diagonal Section of HSK *(Meter)*
- d_{Square} Square Diagonal of Half Square Kite *(Meter)*
- d_{Symmetry} Symmetry Diagonal of Half Square Kite *(Meter)*
- P Perimeter of Half Square Kite *(Meter)*
- r_i Inradius of Half Square Kite *(Meter)*
- $S_{\text{Non Square}}$ Non Square Side of Half Square Kite *(Meter)*
- S_{Square} Square Side of Half Square Kite *(Meter)*

Constants, Functions, Measurements used in list of Half Square Kite Formulas above

- constant(s): **pi**, 3.14159265358979323846264338327950288 *Archimedes' constant*
- Functions: **arccos**, arccos(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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