

Important Kite Formulas PDF



Formulas Examples with Units

List of 17 Important Kite Formulas

1) Angles of Kite Formulas ↻

1.1) Larger Angle of Kite Formula ↻

Formula

Evaluate Formula ↻

$$\angle_{\text{Large}} = 2 \cdot \left(\arccos \left(\frac{d_{\text{Short Section}}^2 + S_{\text{Short}}^2 - \left(\frac{d_{\text{Non Symmetry}}}{2} \right)^2}{2 \cdot d_{\text{Short Section}} \cdot S_{\text{Short}}} \right) \right)$$

Example with Units

$$134.7603^\circ = 2 \cdot \left(\arccos \left(\frac{5\text{ m}^2 + 13\text{ m}^2 - \left(\frac{24\text{ m}}{2} \right)^2}{2 \cdot 5\text{ m} \cdot 13\text{ m}} \right) \right)$$

1.2) Smaller Angle of Kite Formula ↻

Formula

Evaluate Formula ↻

$$\angle_{\text{Small}} = 2 \cdot \left(\arccos \left(\frac{d_{\text{Long Section}}^2 + S_{\text{Long}}^2 - \left(\frac{d_{\text{Non Symmetry}}}{2} \right)^2}{2 \cdot d_{\text{Long Section}} \cdot S_{\text{Long}}} \right) \right)$$

Example with Units

$$106.2602^\circ = 2 \cdot \left(\arccos \left(\frac{9\text{ m}^2 + 15\text{ m}^2 - \left(\frac{24\text{ m}}{2} \right)^2}{2 \cdot 9\text{ m} \cdot 15\text{ m}} \right) \right)$$

1.3) Symmetry Angle of Kite Formula ↻

Formula

Example with Units

Evaluate Formula ↻

$$\angle_{\text{Symmetry}} = \frac{(2 \cdot \pi) - \angle_{\text{Large}} - \angle_{\text{Small}}}{2}$$

$$60^\circ = \frac{(2 \cdot 3.1416) - 135^\circ - 105^\circ}{2}$$



2) Area of Kite Formulas

2.1) Area of Kite Formula

Formula

$$A = \frac{d_{\text{Symmetry}} \cdot d_{\text{Non Symmetry}}}{2}$$

Example with Units

$$168 \text{ m}^2 = \frac{14 \text{ m} \cdot 24 \text{ m}}{2}$$

Evaluate Formula 

2.2) Area of Kite given Inradius Formula

Formula

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

Example with Units

$$165 \text{ m}^2 = \frac{6 \text{ m} \cdot 55 \text{ m}}{2}$$

Evaluate Formula 

2.3) Area of Kite given Sides and Symmetry Angle Formula

Formula

$$A = S_{\text{Long}} \cdot S_{\text{Short}} \cdot \sin(\angle_{\text{Symmetry}})$$

Example with Units

$$168.875 \text{ m}^2 = 15 \text{ m} \cdot 13 \text{ m} \cdot \sin(60^\circ)$$

Evaluate Formula 

3) Perimeter of Kite Formulas

3.1) Perimeter of Kite Formula

Formula

$$P = 2 \cdot (S_{\text{Long}} + S_{\text{Short}})$$

Example with Units

$$56 \text{ m} = 2 \cdot (15 \text{ m} + 13 \text{ m})$$

Evaluate Formula 

3.2) Perimeter of Kite given Inradius Formula

Formula

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

Example with Units

$$56.6667 \text{ m} = \frac{2 \cdot 170 \text{ m}^2}{6 \text{ m}}$$

Evaluate Formula 

4) Radius and Diagonal of Kite Formulas

4.1) Inradius of Kite Formula

Formula

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

Example with Units

$$6.1818 \text{ m} = \frac{2 \cdot 170 \text{ m}^2}{55 \text{ m}}$$

Evaluate Formula 

4.2) Non Symmetry Diagonal of Kite given Area Formula

Formula

$$d_{\text{Non Symmetry}} = \frac{2 \cdot A}{d_{\text{Symmetry}}}$$

Example with Units

$$24.2857 \text{ m} = \frac{2 \cdot 170 \text{ m}^2}{14 \text{ m}}$$

Evaluate Formula 



4.3) Symmetry Diagonal of Kite given Area Formula

Formula

$$d_{\text{Symmetry}} = \frac{2 \cdot A}{d_{\text{Non Symmetry}}}$$

Example with Units

$$14.1667 \text{ m} = \frac{2 \cdot 170 \text{ m}^2}{24 \text{ m}}$$

Evaluate Formula 

5) Side of Kite Formulas

5.1) Long Side of Kite Formulas

5.1.1) Long Side of Kite Formula

Formula

$$S_{\text{Long}} = \sqrt{\left(\frac{d_{\text{Non Symmetry}}}{2}\right)^2 + d_{\text{Long Section}}^2}$$

Example with Units

$$15 \text{ m} = \sqrt{\left(\frac{24 \text{ m}}{2}\right)^2 + 9 \text{ m}^2}$$

Evaluate Formula 

5.1.2) Long Side of Kite given Area, Inradius and Short Side Formula

Formula

$$S_{\text{Long}} = \left(\frac{A}{r_i}\right) - S_{\text{Short}}$$

Example with Units

$$15.3333 \text{ m} = \left(\frac{170 \text{ m}^2}{6 \text{ m}}\right) - 13 \text{ m}$$

Evaluate Formula 

5.1.3) Long Side of Kite given Perimeter and Short Side Formula

Formula

$$S_{\text{Long}} = \left(\frac{P}{2}\right) - S_{\text{Short}}$$

Example with Units

$$14.5 \text{ m} = \left(\frac{55 \text{ m}}{2}\right) - 13 \text{ m}$$

Evaluate Formula 

5.2) Short Side of Kite Formulas

5.2.1) Short Side of Kite Formula

Formula

$$S_{\text{Short}} = \sqrt{\left(\frac{d_{\text{Non Symmetry}}}{2}\right)^2 + d_{\text{Short Section}}^2}$$

Example with Units

$$13 \text{ m} = \sqrt{\left(\frac{24 \text{ m}}{2}\right)^2 + 5 \text{ m}^2}$$

Evaluate Formula 

5.2.2) Short Side of Kite given Area, Inradius and Long Side Formula

Formula

$$S_{\text{Short}} = \left(\frac{A}{r_i}\right) - S_{\text{Long}}$$

Example with Units

$$13.3333 \text{ m} = \left(\frac{170 \text{ m}^2}{6 \text{ m}}\right) - 15 \text{ m}$$

Evaluate Formula 



5.2.3) Short Side of Kite given Perimeter and Long Side Formula

Formula

$$S_{\text{Short}} = \left(\frac{P}{2} \right) - S_{\text{Long}}$$

Example with Units

$$12.5 \text{ m} = \left(\frac{55 \text{ m}}{2} \right) - 15 \text{ m}$$

Evaluate Formula 



Variables used in list of Kite Formulas above

- $\angle_{\text{Large}}$ Larger Angle of Kite (Degree)
- $\angle_{\text{Small}}$ Smaller Angle of Kite (Degree)
- $\angle_{\text{Symmetry}}$ Symmetry Angle of Kite (Degree)
- **A** Area of Kite (Square Meter)
- **d_{Long Section}** Symmetry Diagonal Long Section of Kite (Meter)
- **d_{Non Symmetry}** Non Symmetry Diagonal of Kite (Meter)
- **d_{Short Section}** Symmetry Diagonal Short Section of Kite (Meter)
- **d_{Symmetry}** Symmetry Diagonal of Kite (Meter)
- **P** Perimeter of Kite (Meter)
- **r_i** Inradius of Kite (Meter)
- **S_{Long}** Long Side of Kite (Meter)
- **S_{Short}** Short Side of Kite (Meter)

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

- **constant(s):** π ,
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:** **sin**, sin(Angle)
Sine is a trigonometric function that describes the ratio of the length of the opposite side of a right triangle to the length of the hypotenuse.
- **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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