Important Antiparallelogram Formulas PDF

Formulas
Examples
with Units

List of 11
Important Antiparallelogram Formulas

1) Height of Antiparallelogram Formula

Evaluate Formula

Formula

$$h = \sqrt{S_{Short}^{2} - \left(\frac{l_{c(Long)} - l_{c(Short)}}{2}\right)^{2}}$$

Example with Units

$$6.0622\,\text{m} = \sqrt{7\,\text{m}^{2} - \left(\frac{10\,\text{m} - 3\,\text{m}}{2}\right)^{2}}$$

2) Perimeter of Antiparallelogram Formula

Evaluate Formula

Formula

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

Example with Units

$$30\,\text{m} = 2 \cdot \left(7\,\text{m} + 8\,\text{m}\right)$$

3) Angle of Antiparallelogram Formulas

3.1) Angle Alpha of Antiparallelogram Formula

Evaluate Formula

Formula

$$\angle\alpha = \arccos\left(\frac{d'^{2}_{Short(Long\ side)} + d'^{2}_{Long(Long\ side)} - S_{Short}^{2}}{2 \cdot d'_{Short(Long\ side)} \cdot d'_{Long(Long\ side)}}\right)$$

Example with Units

$$112.0243° = \arccos\left(\frac{2\,\text{m}^{2} + 6\,\text{m}^{2} - 7\,\text{m}^{2}}{2 \cdot 2\,\text{m} \cdot 6\,\text{m}}\right)$$

3.2) Angle Beta of Antiparallelogram Formula

Evaluate Formula

Formula

$$\angle\beta = \arccos\left(\frac{S_{Short}^{2} + d'^{2}_{Long(Long\ side)} - d'^{2}_{Short(Long\ side)}}{2 \cdot S_{Short} \cdot d'_{Long(Long\ side)}}\right)$$

Example with Units

$$15.3589° = \arccos\left(\frac{7\,\text{m}^{2} + 6\,\text{m}^{2} - 2\,\text{m}^{2}}{2 \cdot 7\,\text{m} \cdot 6\,\text{m}}\right)$$

3.3) Angle Gamma of Antiparallelogram Formula

Evaluate Formula

Formula

$$\angle\gamma = \arccos\left(\frac{S_{Short}^{2} + d'_{Short(Long\ side)}^{2} - d'_{Long(Long\ side)}^{2}}{2 \cdot S_{Short} \cdot d'_{Short(Long\ side)}}\right)$$

Example with Units

$$52.6168° = \arccos\left(\frac{7\,m^{2} + 2\,m^{2} - 6\,m^{2}}{2 \cdot 7\,m \cdot 2\,m}\right)$$

3.4) Outer Angle Delta of Antiparallelogram Formula

Evaluate Formula

Formula

$$\angle\delta = \pi - \angle\alpha$$

Example with Units

$$60° = 3.1416 - 120°$$

4) Chord of Antiparallelogram Formulas

4.1) Long Chord of Antiparallelogram Formula

Evaluate Formula

Formula

$$l_{c(Long)} = \sqrt{2 \cdot \left(1 - \cos\left(\pi - \angle\alpha\right)\right) \cdot d'^{2}_{Long(Long\ side)}}$$

Example with Units

$$6\,m = \sqrt{2 \cdot \left(1 - \cos\left(3.1416 - 120°\right)\right) \cdot 6\,m^{2}}$$

4.2) Short Chord of Antiparallelogram Formula

Evaluate Formula

Formula

$$l_{c(Short)} = \sqrt{2 \cdot \left(1 - \cos\left(\pi - \angle\alpha\right)\right) \cdot d'^{2}_{Short(Long\ side)}}$$

Example with Units

$$2\,m = \sqrt{2 \cdot \left(1 - \cos\left(3.1416 - 120°\right)\right) \cdot 2\,m^{2}}$$

5) Side of Antiparallelogram Formulas

5.1) Long Side of Antiparallelogram Formula

Evaluate Formula

Formula

$$S_{Long} = d'_{Short(Long\ side)} + d'_{Long(Long\ side)}$$

Example with Units

$$8\,m = 2\,m + 6\,m$$

5.2) Long Side of Antiparallelogram given Perimeter Formula

Evaluate Formula

Formula

$$S_{Long} = \frac{P}{2} - S_{Short}$$

Example with Units

$$8\,\text{m} = \frac{30\,\text{m}}{2} - 7\,\text{m}$$

5.3) Short Side of Antiparallelogram given Perimeter Formula

Evaluate Formula

Formula

$$S_{Short} = \frac{P}{2} - S_{Long}$$

Example with Units

$$7\,\text{m} = \frac{30\,\text{m}}{2} - 8\,\text{m}$$

Variables used in list of Antiparallelogram Formulas above

- ∠**α** Angle α of Antiparallelogram *(Degree)*
- ∠**β** Angle β of Antiparallelogram *(Degree)*
- ∠**γ** Angle γ of Antiparallelogram *(Degree)*
- ∠**δ** Angle δ of Antiparallelogram *(Degree)*
- $d'_{Long(Long\ side)}$ Long Section of Long Side of Antiparallelogram *(Meter)*
- $d'_{Short(Long\ side)}$ Short Section of Long Side of Antiparallelogram *(Meter)*
- **h** Height of Antiparallelogram *(Meter)*
- $l_{c(Long)}$ Long Chord Length of Antiparallelogram *(Meter)*
- $l_{c(Short)}$ Short Chord Length of Antiparallelogram *(Meter)*
- **P** Perimeter of Antiparallelogram *(Meter)*
- S_{Long} Long Side of Antiparallelogram *(Meter)*
- S_{Short} Short Side of Antiparallelogram *(Meter)*

Constants, Functions, Measurements used in list of Antiparallelogram 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: **Angle** in Degree (°) *Angle Unit Conversion*

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