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Antiparallelogram Formulas

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List of 11 Antiparallelogram Formulas

Antiparallelogram

1) Height of Antiparallelogram

Open Calculator

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

ex $$6.062178\text{m} = \sqrt{(7\text{m})^2 - \left(\frac{10\text{m} - 3\text{m}}{2}\right)^2}$$

2) Perimeter of Antiparallelogram

Open Calculator

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

ex $$30\text{m} = 2 \cdot (7\text{m} + 8\text{m})$$

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Angle of Antiparallelogram

3) Angle Alpha of Antiparallelogram

Open Calculator

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

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

4) Angle Beta of Antiparallelogram

Open Calculator

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

ex $$15.35889^\circ = \arccos\left(\frac{(7\text{m})^2 + (6\text{m})^2 - (2\text{m})^2}{2 \cdot 7\text{m} \cdot 6\text{m}}\right)$$

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5) Angle Gamma of Antiparallelogram

Open Calculator

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

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

6) Outer Angle Delta of Antiparallelogram

Open Calculator

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

ex $$60^\circ = \pi - 120^\circ$$

Chord of Antiparallelogram

7) Long Chord of Antiparallelogram

Open Calculator

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

ex $$6m = \sqrt{2 \cdot (1 - \cos(\pi - 120^\circ)) \cdot (6m)^2}$$

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8) Short Chord of Antiparallelogram

Open Calculator

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

ex $2m = \sqrt{2 \cdot (1 - \cos(\pi - 120^\circ)) \cdot (2m)^2}$

Side of Antiparallelogram

9) Long Side of Antiparallelogram

Open Calculator

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

ex $8m = 2m + 6m$

10) Long Side of Antiparallelogram given Perimeter

Open Calculator

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

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

11) Short Side of Antiparallelogram given Perimeter

Open Calculator

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

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

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Variables Used

- $\angle\alpha$ Angle α of Antiparallelogram *(Degree)*
- $\angle\beta$ Angle β of Antiparallelogram *(Degree)*
- $\angle\gamma$ Angle γ of Antiparallelogram *(Degree)*
- $\angle\delta$ 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)*

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Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **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.
- Function: **cos**, cos(Angle)
  Cosine of an angle is the ratio of the side adjacent to the angle to the hypotenuse of the triangle.
- Function: **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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- Bulge Formulas
- Cardioid Formulas
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- Concave Regular Hexagon Formulas
- Concave Regular Pentagon Formulas
- Crossed Rectangle Formulas
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- Cyclic Quadrilateral Formulas
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- Double Cycloid Formulas
- Fourstar Formulas
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- Golden Rectangle Formulas
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- H Shape Formulas
- Half Yin-Yang Formulas
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