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Parallelogram Formulas

Calculators! Examples! Conversions!

List of 31 Parallelogram Formulas

Parallelogram

Angles of Parallelogram

1) Acute Angle of Parallelogram

fx $\angle_{\text{Acute}} = \pi - \angle_{\text{Obtuse}}$

Open Calculator

ex $45° = \pi - 135°$

2) Obtuse Angle of Parallelogram

fx $\angle_{\text{Obtuse}} = \pi - \angle_{\text{Acute}}$

Open Calculator

ex $135° = \pi - 45°$

Area of Parallelogram

3) Area of Parallelogram

fx $\text{A} = \text{e}_{\text{Long}} \cdot \text{e}_{\text{Short}} \cdot \sin(\angle_{\text{Acute}})$

Open Calculator

ex $59.39697\text{m}^2 = 12\text{m} \cdot 7\text{m} \cdot \sin(45°)$

4) Area of Parallelogram given Area of Long Diagonal Triangle

fx $\text{A} = 2 \cdot \text{A}_{\text{l(Triangle)}}$

Open Calculator

ex $60\text{m}^2 = 2 \cdot 30\text{m}^2$

5) Area of Parallelogram given Diagonals and Acute Angle between Diagonals

Open Calculator

$$A = \frac{1}{2} \cdot d_{Long} \cdot d_{Short} \cdot \sin\left(\angle_{d(Acute)}\right)$$

$$62.0496\text{m}^2 = \frac{1}{2} \cdot 18\text{m} \cdot 9\text{m} \cdot \sin(50°)$$

6) Area of Parallelogram given Diagonals and Obtuse Angle between Diagonals

Open Calculator

$$A = \frac{1}{2} \cdot d_{Long} \cdot d_{Short} \cdot \sin\left(\angle_{d(Obtuse)}\right)$$

$$62.0496\text{m}^2 = \frac{1}{2} \cdot 18\text{m} \cdot 9\text{m} \cdot \sin(130°)$$

7) Area of Parallelogram given Heights and Acute Angle

Open Calculator

$$A = \frac{h_{Long} \cdot h_{Short}}{\sin\left(\angle_{Acute}\right)}$$

$$56.56854\text{m}^2 = \frac{5\text{m} \cdot 8\text{m}}{\sin(45°)}$$

8) Area of Parallelogram given Heights and Obtuse Angle

Open Calculator

$$A = \frac{h_{Long} \cdot h_{Short}}{\sin\left(\angle_{Obtuse}\right)}$$

$$56.56854\text{m}^2 = \frac{5\text{m} \cdot 8\text{m}}{\sin(135°)}$$

9) Area of Parallelogram given Long Edge and Height to Long Edge

Open Calculator

fx $A = e_{Long} \cdot h_{Long}$

ex $60m^2 = 12m \cdot 5m$

10) Area of Parallelogram given Short Edge and Height to Short Edge

Open Calculator

fx $A = e_{Short} \cdot h_{Short}$

ex $56m^2 = 7m \cdot 8m$

11) Area of Parallelogram given Sides and Obtuse Angle between Sides

Open Calculator

fx $A = e_{Long} \cdot e_{Short} \cdot \sin(\angle_{Obtuse})$

ex $59.39697m^2 = 12m \cdot 7m \cdot \sin(135°)$

Diagonal of Parallelogram

Long Diagonal of Parallelogram

12) Long Diagonal of Parallelogram

Open Calculator

fx $d_{Long} = \sqrt{\left(2 \cdot e_{Long}^2\right) + \left(2 \cdot e_{Short}^2\right) - d_{Short}^2}$

ex $17.46425m = \sqrt{\left(2 \cdot (12m)^2\right) + \left(2 \cdot (7m)^2\right) - (9m)^2}$

13) Long Diagonal of Parallelogram given Area, Short Diagonal and Acute Angle between Diagonals

Open Calculator

fx $$d_{Long} = \frac{2 \cdot A}{d_{Short} \cdot \sin(\angle_{d(Acute)})}$$

ex $$17.40543\text{m} = \frac{2 \cdot 60\text{m}^2}{9\text{m} \cdot \sin(50°)}$$

14) Long Diagonal of Parallelogram given Sides and Acute Angle between Sides

fx Open Calculator

$$d_{Long} = \sqrt{e_{Long}^2 + e_{Short}^2 + (2 \cdot e_{Long} \cdot e_{Short} \cdot \cos(\angle_{Acute}))}$$

ex $$17.65769\text{m} = \sqrt{(12\text{m})^2 + (7\text{m})^2 + (2 \cdot (12\text{m}) \cdot (7\text{m}) \cdot \cos(45°))}$$

15) Long Diagonal of Parallelogram given Sides and Obtuse Angle between sides

fx Open Calculator

$$d_{Long} = \sqrt{e_{Long}^2 + e_{Short}^2 - (2 \cdot e_{Long} \cdot e_{Short} \cdot \cos(\angle_{Obtuse}))}$$

ex $$17.65769\text{m} = \sqrt{(12\text{m})^2 + (7\text{m})^2 - (2 \cdot (12\text{m}) \cdot (7\text{m}) \cdot \cos(135°))}$$

Short Diagonal of Parallelogram

16) Short Diagonal of Parallelogram

Open Calculator

fx $$d_{Short} = \sqrt{\left(2 \cdot e_{Long}^2\right) + \left(2 \cdot e_{Short}^2\right) - d_{Long}^2}$$

ex $$7.874008\text{m} = \sqrt{\left(2 \cdot (12\text{m})^2\right) + \left(2 \cdot (7\text{m})^2\right) - (18\text{m})^2}$$

17) Short Diagonal of Parallelogram given Area, Long Diagonal and Obtuse Angle between Diagonals

Open Calculator

fx $$d_{Short} = \frac{2 \cdot A}{d_{Long} \cdot \sin\left(\angle_{d(Obtuse)}\right)}$$

ex $$8.702715\text{m} = \frac{2 \cdot 60\text{m}^2}{18\text{m} \cdot \sin(130°)}$$

18) Short Diagonal of Parallelogram given Sides and Acute Angle between Sides

fx

Open Calculator

$$d_{Short} = \sqrt{e_{Long}^2 + e_{Short}^2 - (2 \cdot e_{Long} \cdot e_{Short} \cdot \cos(\angle_{Acute}))}$$

ex $$8.614294\text{m} = \sqrt{(12\text{m})^2 + (7\text{m})^2 - (2 \cdot (12\text{m}) \cdot (7\text{m}) \cdot \cos(45°))}$$

19) Short Diagonal of Parallelogram given Sides and Obtuse Angle between Sides

fx Open Calculator

$$d_{Short} = \sqrt{e_{Long}^2 + e_{Short}^2 + \left(2 \cdot e_{Long} \cdot e_{Short} \cdot \cos\left(\angle_{Obtuse}\right)\right)}$$

ex

$$8.614294\text{m} = \sqrt{(12\text{m})^2 + (7\text{m})^2 + \left(2 \cdot (12\text{m}) \cdot (7\text{m}) \cdot \cos\left(135°\right)\right)}$$

Perimeter of Parallelogram

20) Perimeter of Parallelogram

fx Open Calculator

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

ex

$$38\text{m} = (2 \cdot 12\text{m}) + (2 \cdot 7\text{m})$$

21) Perimeter of Parallelogram given Diagonals and Long Edge

fx Open Calculator

$$P = 2 \cdot \left(e_{Long} + \sqrt{\left(\frac{d_{Long}^2 + d_{Short}^2}{2}\right) - e_{Long}^2}\right)$$

ex

$$39.29706\text{m} = 2 \cdot \left((12\text{m}) + \sqrt{\left(\frac{(18\text{m})^2 + (9\text{m})^2}{2}\right) - (12\text{m})^2}\right)$$

Side of Parallelogram

Long Edge of Parallelogram

22) Long Edge of Parallelogram

Open Calculator

fx $$e_{Long} = \frac{A}{h_{Long}}$$

ex $$12m = \frac{60m^2}{5m}$$

23) Long Edge of Parallelogram given Diagonals and Acute Angle between Diagonals

Open Calculator

fx $$e_{Long} = \frac{1}{2} \cdot \sqrt{d_{Long}^2 + d_{Short}^2 + \left(2 \cdot d_{Long} \cdot d_{Short} \cdot \cos\left(\angle_{d(Acute)}\right)\right)}$$

ex $$12.38208m = \frac{1}{2} \cdot \sqrt{(18m)^2 + (9m)^2 + (2 \cdot (18m) \cdot (9m) \cdot \cos(50°))}$$

24) Long Edge of Parallelogram given Diagonals and Obtuse Angle between Diagonals

Open Calculator

fx $$e_{Long} = \frac{1}{2} \cdot \sqrt{d_{Long}^2 + d_{Short}^2 - \left(2 \cdot d_{Long} \cdot d_{Short} \cdot \cos\left(\angle_{d(Obtuse)}\right)\right)}$$

ex $$12.38208m = \frac{1}{2} \cdot \sqrt{(18m)^2 + (9m)^2 - (2 \cdot (18m) \cdot (9m) \cdot \cos(130°))}$$

25) Long Edge of Parallelogram given Diagonals and Short Edge

Open Calculator

fx $$e_{Long} = \sqrt{\frac{d_{Long}^2 + d_{Short}^2 - \left(2 \cdot e_{Short}^2\right)}{2}}$$

ex $$12.38951m = \sqrt{\frac{(18m)^2 + (9m)^2 - \left(2 \cdot (7m)^2\right)}{2}}$$

26) Long Edge of Parallelogram given Height to Short Edge and Acute Angle between Sides

Open Calculator

fx $$e_{Long} = \frac{h_{Short}}{\sin(\angle_{Acute})}$$

ex $$11.31371m = \frac{8m}{\sin(45°)}$$

Short Edge of Parallelogram

27) Short Edge of Parallelogram

Open Calculator

fx $$e_{Short} = \frac{A}{h_{Short}}$$

ex $$7.5m = \frac{60m^2}{8m}$$

28) Short Edge of Parallelogram given Diagonals and Acute Angle between Diagonals

fx Open Calculator

$$e_{Short} = \frac{1}{2} \cdot \sqrt{d_{Long}^2 + d_{Short}^2 - \left(2 \cdot d_{Long} \cdot d_{Short} \cdot \cos\left(\angle_{d(Acute)}\right)\right)}$$

ex
$$7.013145m = \frac{1}{2} \cdot \sqrt{(18m)^2 + (9m)^2 - (2 \cdot (18m) \cdot (9m) \cdot \cos(50°))}$$

29) Short Edge of Parallelogram given Diagonals and Long Edge

Open Calculator

fx
$$e_{Short} = \sqrt{\frac{d_{Long}^2 + d_{Short}^2 - \left(2 \cdot e_{Long}^2\right)}{2}}$$

ex
$$7.648529m = \sqrt{\frac{(18m)^2 + (9m)^2 - \left(2 \cdot (12m)^2\right)}{2}}$$

30) Short Edge of Parallelogram given Diagonals and Obtuse Angle between Diagonals

fx Open Calculator

$$e_{Short} = \frac{1}{2} \cdot \sqrt{d_{Long}^2 + d_{Short}^2 + \left(2 \cdot d_{Long} \cdot d_{Short} \cdot \cos\left(\angle_{d(Obtuse)}\right)\right)}$$

ex
$$7.013145m = \frac{1}{2} \cdot \sqrt{(18m)^2 + (9m)^2 + (2 \cdot (18m) \cdot (9m) \cdot \cos(130°))}$$

31) Short Edge of Parallelogram given Height to Long Edge and Acute Angle between Sides

Open Calculator

$$e_{Short} = \frac{h_{Long}}{\sin(\angle_{Acute})}$$

$$7.071068\text{m} = \frac{5\text{m}}{\sin(45°)}$$

Variables Used

- $\angle_{Acute}$ Acute Angle of Parallelogram *(Degree)*
- $\angle_{d(Acute)}$ Acute Angle between Diagonals of Parallelogram *(Degree)*
- $\angle_{d(Obtuse)}$ Obtuse Angle between Diagonals of Parallelogram *(Degree)*
- $\angle_{Obtuse}$ Obtuse Angle of Parallelogram *(Degree)*
- A Area of Parallelogram *(Square Meter)*
- $A_{l(Triangle)}$ Area of Long Diagonal Triangle of Parallelogram *(Square Meter)*
- d_{Long} Long Diagonal of Parallelogram *(Meter)*
- d_{Short} Short Diagonal of Parallelogram *(Meter)*
- e_{Long} Long Edge of Parallelogram *(Meter)*
- e_{Short} Short Edge of Parallelogram *(Meter)*
- h_{Long} Height to Long Edge of Parallelogram *(Meter)*
- h_{Short} Height to Short Edge of Parallelogram *(Meter)*
- P Perimeter of Parallelogram *(Meter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **cos**, cos(Angle)
  Trigonometric cosine function
- Function: **sin**, sin(Angle)
  Trigonometric sine function
- Function: **sqrt**, sqrt(Number)
  Square root function
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Area** in Square Meter (m^2)
  Area Unit Conversion
- Measurement: **Angle** in Degree (°)
  Angle Unit Conversion

Check other formula lists

- Annulus Formulas
- Antiparallelogram Formulas
- Arrow Hexagon Formulas
- Astroid Formulas
- Bulge Formulas
- Cardioid Formulas
- Circular Arc Quadrangle Formulas
- Concave Pentagon Formulas
- Concave Quadrilateral Formulas
- Concave Regular Hexagon Formulas
- Concave Regular Pentagon Formulas
- Crossed Rectangle Formulas
- Cut Rectangle Formulas
- Cyclic Quadrilateral Formulas
- Cycloid Formulas
- Decagon Formulas
- Dodecagon Formulas
- Double Cycloid Formulas
- Fourstar Formulas
- Frame Formulas
- Golden Rectangle Formulas
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- H Shape Formulas
- Half Yin-Yang Formulas
- Heart Shape Formulas
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- Heptagon Formulas
- Hexadecagon Formulas
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- T Shape Formulas
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- Trapezoid Formulas
- Tricorn Formulas
- Tri-equilateral Trapezoid Formulas
- Truncated Square Formulas
- Unicursal Hexagram Formulas
- X Shape Formulas

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