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Important Formulas of Rhombus

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List of 28 Important Formulas of Rhombus

Important Formulas of Rhombus

Angles of Rhombus

1) Acute Angle of Rhombus given both Diagonals

Open Calculator

fx $$\angle_{\text{Acute}} = a\sin\left(\frac{2\cdot \text{d}_{\text{Long}}\cdot \text{d}_{\text{Short}}}{\text{d}_{\text{Long}}^2+\text{d}_{\text{Short}}^2}\right)$$

ex $$47.92498^\circ = a\sin\left(\frac{2\cdot (18\text{m})\cdot (8\text{m})}{(18\text{m})^2+(8\text{m})^2}\right)$$

2) Acute Angle of Rhombus given Long Diagonal

Open Calculator

fx $$\angle_{\text{Acute}} = a\cos\left(\frac{\text{d}_{\text{Long}}^2}{2\cdot \text{S}^2}-1\right)$$

ex $$51.68387^\circ = a\cos\left(\frac{(18\text{m})^2}{2\cdot (10\text{m})^2}-1\right)$$

3) Acute Angle of Rhombus given Short Diagonal

Open Calculator

fx $$\angle_{\text{Acute}} = a\cos\left(1 - \frac{d_{\text{Short}}^2}{2 \cdot S^2}\right)$$

ex $$47.15636^\circ = a\cos\left(1 - \frac{(8\text{m})^2}{2 \cdot (10\text{m})^2}\right)$$

4) Obtuse Angle of Rhombus given both Diagonals

Open Calculator

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

ex $$132.075^\circ = 2 \cdot a\cos\left(\frac{8\text{m}}{\sqrt{(18\text{m})^2 + (8\text{m})^2}}\right)$$

Area of Rhombus

5) Area of Rhombus

Open Calculator

fx $$A = S^2 \cdot \sin(\angle_{\text{Acute}})$$

ex $$70.71068\text{m}^2 = (10\text{m})^2 \cdot \sin(45^\circ)$$

6) Area of Rhombus given Both Diagonals

Open Calculator

fx $$A = \frac{d_{Long} \cdot d_{Short}}{2}$$

ex $$72m^2 = \frac{18m \cdot 8m}{2}$$

7) Area of Rhombus given Height

Open Calculator

fx $$A = S \cdot h$$

ex $$70m^2 = 10m \cdot 7m$$

8) Area of Rhombus given Inradius

Open Calculator

fx $$A = 2 \cdot S \cdot r_i$$

ex $$60m^2 = 2 \cdot 10m \cdot 3m$$

Diagonal of Rhombus

9) Long Diagonal of Rhombus

Open Calculator

fx $$d_{Long} = 2 \cdot S \cdot \cos\left(\frac{\angle Acute}{2}\right)$$

ex $$18.47759m = 2 \cdot 10m \cdot \cos\left(\frac{45^\circ}{2}\right)$$

10) Long Diagonal of Rhombus given Area and Short Diagonal

Open Calculator

fx $$d_{Long} = \frac{2 \cdot A}{d_{Short}}$$

ex $$17.5\text{m} = \frac{2 \cdot 70\text{m}^2}{8\text{m}}$$

11) Long Diagonal of Rhombus given Short Diagonal and Acute Angle

Open Calculator

fx $$d_{Long} = \frac{d_{Short}}{\tan\left(\frac{\angle_{Acute}}{2}\right)}$$

ex $$19.31371\text{m} = \frac{8\text{m}}{\tan\left(\frac{45^\circ}{2}\right)}$$

12) Long Diagonal of Rhombus given Short Diagonal and Side

Open Calculator

fx $$d_{Long} = \sqrt{4 \cdot S^2 - d_{Short}^2}$$

ex $$18.3303\text{m} = \sqrt{4 \cdot (10\text{m})^2 - (8\text{m})^2}$$

13) Short Diagonal of Rhombus

Open Calculator

fx $$d_{Short} = 2 \cdot S \cdot \sin\left(\frac{\angle_{Acute}}{2}\right)$$

ex $$7.653669\text{m} = 2 \cdot 10\text{m} \cdot \sin\left(\frac{45^\circ}{2}\right)$$

14) Short Diagonal of Rhombus given Area and Long Diagonal

Open Calculator

fx $$d_{Short} = \frac{2 \cdot A}{d_{Long}}$$

ex $$7.777778\text{m} = \frac{2 \cdot 70\text{m}^2}{18\text{m}}$$

15) Short Diagonal of Rhombus given Long Diagonal and Acute Angle

Open Calculator

fx $$d_{Short} = d_{Long} \cdot \tan\left(\frac{\angle_{Acute}}{2}\right)$$

ex $$7.455844\text{m} = 18\text{m} \cdot \tan\left(\frac{45^\circ}{2}\right)$$

16) Short Diagonal of Rhombus given Long Diagonal and Side

Open Calculator

fx $$d_{Short} = \sqrt{4 \cdot S^2 - d_{Long}^2}$$

ex $$8.717798\text{m} = \sqrt{4 \cdot (10\text{m})^2 - (18\text{m})^2}$$

Height of Rhombus

17) Height of Rhombus

Open Calculator

fx $$h = S \cdot \sin(\angle_{Acute})$$

ex $$7.071068\text{m} = 10\text{m} \cdot \sin(45^\circ)$$

18) Height of Rhombus given Area

Open Calculator

fx $$h = \frac{A}{S}$$

ex $$7\text{m} = \frac{70\text{m}^2}{10\text{m}}$$

19) Height of Rhombus given Inradius

Open Calculator

fx $$h = 2 \cdot r_i$$

ex $$6\text{m} = 2 \cdot 3\text{m}$$

Inradius of Rhombus

20) Inradius of Rhombus

Open Calculator

fx $$r_i = \frac{S \cdot \sin(\angle_{\text{Acute}})}{2}$$

ex $$3.535534\text{m} = \frac{10\text{m} \cdot \sin(45^\circ)}{2}$$

21) Inradius of Rhombus given Area and Side

Open Calculator

fx $$r_i = \frac{A}{2 \cdot S}$$

ex $$3.5\text{m} = \frac{70\text{m}^2}{2 \cdot 10\text{m}}$$

22) Inradius of Rhombus given both Diagonals

Open Calculator

fx $$r_i = \frac{d_{Long} \cdot d_{Short}}{2 \cdot \sqrt{d_{Long}^2 + d_{Short}^2}}$$

ex $$3.655246\text{m} = \frac{(18\text{m}) \cdot (8\text{m})}{2 \cdot \sqrt{(18\text{m})^2 + (8\text{m})^2}}$$

23) Inradius of Rhombus given Height

Open Calculator

fx $$r_i = \frac{h}{2}$$

ex $$3.5\text{m} = \frac{7\text{m}}{2}$$

24) Inradius of Rhombus given Long Diagonal and Side

Open Calculator

fx $$r_i = \frac{d_{Long} \cdot \sqrt{S^2 - \frac{d_{Long}^2}{4}}}{2 \cdot S}$$

ex $$3.923009\text{m} = \frac{(18\text{m}) \cdot \sqrt{(10\text{m})^2 - \frac{(18\text{m})^2}{4}}}{2 \cdot (10\text{m})}$$

25) Inradius of Rhombus given Short Diagonal and Side

Open Calculator

fx $$r_i = \frac{d_{Short} \cdot \sqrt{S^2 - \frac{d_{Short}^2}{4}}}{2 \cdot S}$$

ex $$3.666061\text{m} = \frac{(8\text{m}) \cdot \sqrt{(10\text{m})^2 - \frac{(8\text{m})^2}{4}}}{2 \cdot (10\text{m})}$$

Perimeter of Rhombus

26) Perimeter of Rhombus

Open Calculator

fx $$P = 4 \cdot S$$

ex $$40\text{m} = 4 \cdot 10\text{m}$$

27) Perimeter of Rhombus given Short Diagonal and Long Diagonal

Open Calculator

fx $$P = 2 \cdot \sqrt{d_{Long}^2 + d_{Short}^2}$$

ex $$39.39543\text{m} = 2 \cdot \sqrt{(18\text{m})^2 + (8\text{m})^2}$$

Side of Rhombus

28) Side of Rhombus given Short Diagonal and Long Diagonal

Open Calculator

fx $$S = \frac{\sqrt{d_{Long}^2 + d_{Short}^2}}{2}$$

ex $$9.848858\text{m} = \frac{\sqrt{(18\text{m})^2 + (8\text{m})^2}}{2}$$

Variables Used

- $\angle_{Acute}$ Acute Angle of Rhombus *(Degree)*
- $\angle_{Obtuse}$ Obtuse Angle of Rhombus *(Degree)*
- **A** Area of Rhombus *(Square Meter)*
- d_{Long} Long Diagonal of Rhombus *(Meter)*
- d_{Short} Short Diagonal of Rhombus *(Meter)*
- **h** Height of Rhombus *(Meter)*
- **P** Perimeter of Rhombus *(Meter)*
- r_i Inradius of Rhombus *(Meter)*
- **S** Side of Rhombus *(Meter)*

Constants, Functions, Measurements used

- Function: **acos**, acos(Number)
  Inverse trigonometric cosine function
- Function: **asin**, asin(Number)
  Inverse trigonometric sine function
- Function: **cos**, cos(Angle)
  Trigonometric cosine function
- Function: **sin**, sin(Angle)
  Trigonometric sine function
- Function: **sqrt**, sqrt(Number)
  Square root function
- Function: **tan**, tan(Angle)
  Trigonometric tangent function
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Area** in Square Meter (m²)
  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
- Grid Formulas
- H Shape Formulas
- Half Yin-Yang Formulas
- Heart Shape Formulas
- Hendecagon Formulas
- Heptagon Formulas
- Hexadecagon Formulas
- Hexagon Formulas
- Hexagram Formulas
- House Shape Formulas
- Hyperbola Formulas
- Hypocycloid Formulas
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- Koch Curve Formulas
- L Shape Formulas
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- Quarter Circle Formulas
- Rectangle Formulas

- Rectangular Hexagon Formulas
- Regular Polygon Formulas
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- Rhombus Formulas
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- Sharp Kink 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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