Important Formulas of Hexagon PDF

Formulas
Examples
with Units

List of 28
Important Formulas of Hexagon

1) Area of Hexagon Formulas

1.1) Area of Hexagon Formula

Evaluate Formula

Formula

$$A = \frac{3 \cdot \sqrt{3}}{2} \cdot l_e^2$$

Example with Units

$$93.5307\,\text{m}^2 = \frac{3 \cdot \sqrt{3}}{2} \cdot 6\,\text{m}^2$$

1.2) Area of Hexagon given Circumradius Formula

Evaluate Formula

Formula

$$A = \frac{3 \cdot \sqrt{3}}{2} \cdot r_c^2$$

Example with Units

$$93.5307\,\text{m}^2 = \frac{3 \cdot \sqrt{3}}{2} \cdot 6\,\text{m}^2$$

1.3) Area of Hexagon given Height Formula

Evaluate Formula

Formula

$$A = \frac{\sqrt{3}}{2} \cdot h^2$$

Example with Units

$$86.6025\,\text{m}^2 = \frac{\sqrt{3}}{2} \cdot 10\,\text{m}^2$$

1.4) Area of Hexagon given Perimeter Formula

Evaluate Formula

Formula

$$A = \frac{P^2}{8 \cdot \sqrt{3}}$$

Example with Units

$$93.5307\,\text{m}^2 = \frac{36\,\text{m}^2}{8 \cdot \sqrt{3}}$$

2) Diagonals of Hexagon Formulas

2.1) Long Diagonal of Hexagon Formula

Evaluate Formula

Formula

$$d_{Long} = 2 \cdot l_e$$

Example with Units

$$12\,\text{m} = 2 \cdot 6\,\text{m}$$

2.2) Long Diagonal of Hexagon given Circumradius Formula

Evaluate Formula

Formula

$$d_{Long} = 2 \cdot r_c$$

Example with Units

$$12\,\text{m} = 2 \cdot 6\,\text{m}$$

2.3) Long Diagonal of Hexagon given Short Diagonal Formula

Evaluate Formula

Formula

$$d_{Long} = \frac{2}{\sqrt{3}} \cdot d_{Short}$$

Example with Units

$$11.547\,\text{m} = \frac{2}{\sqrt{3}} \cdot 10\,\text{m}$$

2.4) Short Diagonal of Hexagon Formula

Evaluate Formula

Formula

$$d_{Short} = \left(\sqrt{3}\right) \cdot l_e$$

Example with Units

$$10.3923\,\text{m} = \left(\sqrt{3}\right) \cdot 6\,\text{m}$$

2.5) Short Diagonal of Hexagon given Long Diagonal Formula

Evaluate Formula

Formula

$$d_{Short} = \left(\frac{\sqrt{3}}{2}\right) \cdot d_{Long}$$

Example with Units

$$10.3923\,\text{m} = \left(\frac{\sqrt{3}}{2}\right) \cdot 12\,\text{m}$$

2.6) Short Diagonal of Hexagon given Perimeter Formula

Evaluate Formula

Formula

$$d_{Short} = \frac{P}{2 \cdot \sqrt{3}}$$

Example with Units

$$10.3923\,\text{m} = \frac{36\,\text{m}}{2 \cdot \sqrt{3}}$$

3) Edge Length of Hexagon Formulas

3.1) Edge Length of Hexagon given Area Formula

Evaluate Formula

Formula

$$l_e = \sqrt{\left(\frac{2}{3 \cdot \sqrt{3}}\right) \cdot A}$$

Example with Units

$$6.0469\,\text{m} = \sqrt{\left(\frac{2}{3 \cdot \sqrt{3}}\right) \cdot 95\,\text{m}^2}$$

3.2) Edge Length of Hexagon given Height Formula

Evaluate Formula

Formula

$$l_e = \frac{h}{\sqrt{3}}$$

Example with Units

$$5.7735\,\text{m} = \frac{10\,\text{m}}{\sqrt{3}}$$

3.3) Edge Length of Hexagon given Inradius Formula

Evaluate Formula

Formula

$$l_e = \frac{2 \cdot r_i}{\sqrt{3}}$$

Example with Units

$$5.7735\,\text{m} = \frac{2 \cdot 5\,\text{m}}{\sqrt{3}}$$

3.4) Edge Length of Hexagon given Width Formula

Evaluate Formula

Formula

$$l_e = \frac{w}{2}$$

Example with Units

$$6\,\text{m} = \frac{12\,\text{m}}{2}$$

4) Height of Hexagon Formulas

4.1) Height of Hexagon Formula

Evaluate Formula

Formula

$$h = \sqrt{3} \cdot l_e$$

Example with Units

$$10.3923\,\text{m} = \sqrt{3} \cdot 6\,\text{m}$$

4.2) Height of Hexagon given Circumradius Formula

Evaluate Formula

Formula

$$h = \sqrt{3} \cdot r_c$$

Example with Units

$$10.3923\,\text{m} = \sqrt{3} \cdot 6\,\text{m}$$

4.3) Height of Hexagon given Inradius Formula

Evaluate Formula

Formula

$$h = 2 \cdot r_i$$

Example with Units

$$10\,\text{m} = 2 \cdot 5\,\text{m}$$

4.4) Height of Hexagon given Perimeter Formula

Evaluate Formula

Formula

$$h = \frac{P}{2 \cdot \sqrt{3}}$$

Example with Units

$$10.3923\,\text{m} = \frac{36\,\text{m}}{2 \cdot \sqrt{3}}$$

5) Perimeter of Hexagon Formulas

5.1) Perimeter of Hexagon Formula

Evaluate Formula

Formula

$$P = 6 \cdot l_e$$

Example with Units

$$36\,\text{m} = 6 \cdot 6\,\text{m}$$

5.2) Perimeter of Hexagon given Area Formula

Evaluate Formula

Formula

$$P = \sqrt{8 \cdot \sqrt{3} \cdot A}$$

Example with Units

$$36.2817\,\text{m} = \sqrt{8 \cdot \sqrt{3} \cdot 95\,\text{m}^2}$$

5.3) Perimeter of Hexagon given Width Formula

Evaluate Formula

Formula

$$P = 3 \cdot w$$

Example with Units

$$36\,\text{m} = 3 \cdot 12\,\text{m}$$

6) Radius of Hexagon Formulas

6.1) Circumradius of Hexagon Formula

Evaluate Formula

Formula

$$r_c = \frac{l_e}{1}$$

Example with Units

$$6\,\text{m} = \frac{6\,\text{m}}{1}$$

6.2) Circumradius of Hexagon given Height Formula

Evaluate Formula

Formula

$$r_c = \frac{h}{\sqrt{3}}$$

Example with Units

$$5.7735\,\text{m} = \frac{10\,\text{m}}{\sqrt{3}}$$

6.3) Circumradius of Hexagon given Width Formula

Evaluate Formula

Formula

$$r_c = \frac{w}{2}$$

Example with Units

$$6\,\text{m} = \frac{12\,\text{m}}{2}$$

6.4) Inradius of Hexagon Formula

Evaluate Formula

Formula

$$r_i = \frac{\sqrt{3}}{2} \cdot l_e$$

Example with Units

$$5.1962\,\text{m} = \frac{\sqrt{3}}{2} \cdot 6\,\text{m}$$

6.5) Inradius of Hexagon given Circumradius Formula

Evaluate Formula

Formula

$$r_i = \frac{\sqrt{3}}{2} \cdot r_c$$

Example with Units

$$5.1962\,\text{m} = \frac{\sqrt{3}}{2} \cdot 6\,\text{m}$$

7) Width of Hexagon Formulas

7.1) Width of Hexagon Formula

Evaluate Formula

Formula

$$w = 2 \cdot l_e$$

Example with Units

$$12\,\text{m} = 2 \cdot 6\,\text{m}$$

7.2) Width of Hexagon given Perimeter Formula

Evaluate Formula

Formula

$$w = \frac{P}{3}$$

Example with Units

$$12\,\text{m} = \frac{36\,\text{m}}{3}$$

Variables used in list of Important Formulas of Hexagon above

- **A** Area of Hexagon *(Square Meter)*
- d_{Long} Long Diagonal of Hexagon *(Meter)*
- d_{Short} Short Diagonal of Hexagon *(Meter)*
- **h** Height of Hexagon *(Meter)*
- l_e Edge Length of Hexagon *(Meter)*
- **P** Perimeter of Hexagon *(Meter)*
- r_c Circumradius of Hexagon *(Meter)*
- r_i Inradius of Hexagon *(Meter)*
- **w** Width of Hexagon *(Meter)*

Constants, Functions, Measurements used in list of Important Formulas of Hexagon above

- 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

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- Important Half Yin-Yang Formulas
- Important Heart Shape Formulas
- Important Hendecagon Formulas
- Important Heptagon Formulas
- Important Hexadecagon Formulas
- Important Hexagon Formulas
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