



[calculatoratoz.com](http://calculatoratoz.com)



[unitsconverters.com](http://unitsconverters.com)

# Important Formulas of Octagon

Calculators!

Examples!

Conversions!

Bookmark [calculatoratoz.com](http://calculatoratoz.com), [unitsconverters.com](http://unitsconverters.com)

Widest Coverage of Calculators and Growing - **30,000+ Calculators!**  
Calculate With a Different Unit for Each Variable - **In built Unit Conversion!**  
Widest Collection of Measurements and Units - **250+ Measurements!**

Feel free to SHARE this document with your friends!

[Please leave your feedback here...](#)



# List of 31 Important Formulas of Octagon

## Important Formulas of Octagon

### Area of Octagon

#### 1) Area of Octagon

$$fx \quad A = 2 \cdot (1 + \sqrt{2}) \cdot l_e^2$$

Open Calculator 

$$ex \quad 482.8427m^2 = 2 \cdot (1 + \sqrt{2}) \cdot (10m)^2$$

#### 2) Area of Octagon given Circumradius

$$fx \quad A = 2 \cdot \sqrt{2} \cdot r_c^2$$

Open Calculator 

$$ex \quad 478.0042m^2 = 2 \cdot \sqrt{2} \cdot (13m)^2$$

#### 3) Area of Octagon given Edge Length and Inradius

$$fx \quad A = 4 \cdot l_e \cdot r_i$$

Open Calculator 

$$ex \quad 480m^2 = 4 \cdot 10m \cdot 12m$$



#### 4) Area of Octagon given Height

$$\text{fx } A = 2 \cdot (\sqrt{2} - 1) \cdot h^2$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235\_img.jpg\)](#)

$$\text{ex } 477.174\text{m}^2 = 2 \cdot (\sqrt{2} - 1) \cdot (24\text{m})^2$$

#### 5) Area of Octagon given Perimeter

$$\text{fx } A = (1 + \sqrt{2}) \cdot \frac{P^2}{32}$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0\_img.jpg\)](#)

$$\text{ex } 482.8427\text{m}^2 = (1 + \sqrt{2}) \cdot \frac{(80\text{m})^2}{32}$$

### Diagonal of Octagon

#### 6) Long Diagonal of Octagon

$$\text{fx } d_{\text{Long}} = \sqrt{4 + (2 \cdot \sqrt{2})} \cdot l_e$$

[Open Calculator !\[\]\(b792654f2cef9719eabeb6c5be00811e\_img.jpg\)](#)

$$\text{ex } 26.13126\text{m} = \sqrt{4 + (2 \cdot \sqrt{2})} \cdot 10\text{m}$$

#### 7) Long Diagonal of Octagon given Circumradius

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

[Open Calculator !\[\]\(84f47badaad7772cd95667a7c387a639\_img.jpg\)](#)

$$\text{ex } 26\text{m} = 2 \cdot 13\text{m}$$




8) Medium Diagonal of Octagon 

$$fx \quad d_{\text{Medium}} = (1 + \sqrt{2}) \cdot l_e$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95\_img.jpg\)](#)


$$ex \quad 24.14214m = (1 + \sqrt{2}) \cdot 10m$$

9) Medium Diagonal of Octagon given Inradius 

$$fx \quad d_{\text{Medium}} = 2 \cdot r_i$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2\_img.jpg\)](#)


$$ex \quad 24m = 2 \cdot 12m$$

10) Short Diagonal of Octagon 

$$fx \quad d_{\text{Short}} = \sqrt{2 + \sqrt{2}} \cdot l_e$$

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7\_img.jpg\)](#)

$$ex \quad 18.47759m = \sqrt{2 + \sqrt{2}} \cdot 10m$$

11) Short Diagonal of Octagon given Area 

$$fx \quad d_{\text{Short}} = \sqrt{\frac{A}{\sqrt{2}}}$$

[Open Calculator !\[\]\(899d8b7697d64725bf017d3296cfcf1b\_img.jpg\)](#)

$$ex \quad 18.42312m = \sqrt{\frac{480m^2}{\sqrt{2}}}$$



## Edge Length of Octagon

### 12) Edge Length of Octagon given Area

$$fx \quad l_e = \sqrt{(\sqrt{2} - 1) \cdot \left(\frac{A}{2}\right)}$$

[Open Calculator !\[\]\(74d4806277d7e73349d8e8c0897931e9\_img.jpg\)](#)

$$ex \quad 9.970519m = \sqrt{(\sqrt{2} - 1) \cdot \left(\frac{480m^2}{2}\right)}$$

### 13) Edge Length of Octagon given Circumradius

$$fx \quad l_e = \left(\sqrt{2} - \sqrt{2}\right) \cdot r_c$$

[Open Calculator !\[\]\(8bba887393ca45b761e5cb49e755e762\_img.jpg\)](#)

$$ex \quad 9.949769m = \left(\sqrt{2} - \sqrt{2}\right) \cdot 13m$$

### 14) Edge Length of Octagon given Height

$$fx \quad l_e = (\sqrt{2} - 1) \cdot h$$

[Open Calculator !\[\]\(0fb13ad0bfa3d86868cdd3883e5665b3\_img.jpg\)](#)

$$ex \quad 9.941125m = (\sqrt{2} - 1) \cdot 24m$$



15) Edge Length of Octagon given Long Diagonal [Open Calculator !\[\]\(eafc244b53721dd1ec133f0772f70fc7\_img.jpg\)](#)

$$\text{fx } l_e = \left( \frac{\sqrt{2} - \sqrt{2}}{2} \right) \cdot d_{\text{Long}}$$

$$\text{ex } 9.949769\text{m} = \left( \frac{\sqrt{2} - \sqrt{2}}{2} \right) \cdot 26\text{m}$$

Height of Octagon 16) Height of Octagon [Open Calculator !\[\]\(e1d6102fe77919492c04879c8450f1f5\_img.jpg\)](#)

$$\text{fx } h = (1 + \sqrt{2}) \cdot l_e$$

$$\text{ex } 24.14214\text{m} = (1 + \sqrt{2}) \cdot 10\text{m}$$

17) Height of Octagon given Area [Open Calculator !\[\]\(ab4e2b3fc7e7887b7a72f548aa6f5e60\_img.jpg\)](#)

$$\text{fx } h = \sqrt{\left( \frac{1 + \sqrt{2}}{2} \right) \cdot A}$$

$$\text{ex } 24.07096\text{m} = \sqrt{\left( \frac{1 + \sqrt{2}}{2} \right) \cdot 480\text{m}^2}$$



## 18) Height of Octagon given Medium Diagonal

$$fx \quad h = d_{\text{Medium}} \cdot 1$$

[Open Calculator !\[\]\(9dfdaff1d86ba3c1f8353b4d1b61b8c5\_img.jpg\)](#)

$$ex \quad 24m = 24m \cdot 1$$

## 19) Height of Octagon given Perimeter

$$fx \quad h = \left(1 + \sqrt{2}\right) \cdot \frac{P}{8}$$

[Open Calculator !\[\]\(2b376d1a92330ab09dad2665d2f89bf5\_img.jpg\)](#)

$$ex \quad 24.14214m = \left(1 + \sqrt{2}\right) \cdot \frac{80m}{8}$$

## Perimeter of Octagon

### 20) Perimeter of Octagon

$$fx \quad P = 8 \cdot l_e$$

[Open Calculator !\[\]\(0d7ca0919e6c47bbd874bfa0189fe22e\_img.jpg\)](#)

$$ex \quad 80m = 8 \cdot 10m$$

### 21) Perimeter of Octagon given Circumradius

$$fx \quad P = \frac{16 \cdot r_c}{\sqrt{4 + (2 \cdot \sqrt{2})}}$$

[Open Calculator !\[\]\(683dba75afe26e28cd4de5730b776760\_img.jpg\)](#)

$$ex \quad 79.59815m = \frac{16 \cdot 13m}{\sqrt{4 + (2 \cdot \sqrt{2})}}$$



## 22) Perimeter of Octagon given Inradius

$$\text{fx } P = \frac{16 \cdot r_i}{1 + \sqrt{2}}$$

[Open Calculator !\[\]\(6605b201d6f14d9b3bcb8ab5f274d107\_img.jpg\)](#)

$$\text{ex } 79.529\text{m} = \frac{16 \cdot 12\text{m}}{1 + \sqrt{2}}$$

## Radius of Octagon

### 23) Circumradius of Octagon

$$\text{fx } r_c = \sqrt{1 + \left(\frac{1}{\sqrt{2}}\right)} \cdot l_e$$

[Open Calculator !\[\]\(f95dab70c751fda7d824b8b03650f7aa\_img.jpg\)](#)

$$\text{ex } 13.06563\text{m} = \sqrt{1 + \left(\frac{1}{\sqrt{2}}\right)} \cdot 10\text{m}$$

### 24) Circumradius of Octagon given Height


$$\text{fx } r_c = \sqrt{1 - \left(\frac{1}{\sqrt{2}}\right)} \cdot h$$

[Open Calculator !\[\]\(e9474ce1d70442456f8fe9c393ea149c\_img.jpg\)](#)

$$\text{ex } 12.98871\text{m} = \sqrt{1 - \left(\frac{1}{\sqrt{2}}\right)} \cdot 24\text{m}$$





25) Inradius of Octagon [Open Calculator !\[\]\(666e09182d4cd268646ea700ea60dcdf\_img.jpg\)](#)

$$\text{fx } r_i = \left( \frac{1 + \sqrt{2}}{2} \right) \cdot l_e$$

$$\text{ex } 12.07107\text{m} = \left( \frac{1 + \sqrt{2}}{2} \right) \cdot 10\text{m}$$

26) Inradius of Octagon given Height [Open Calculator !\[\]\(003082e50e3009141f59bd5df831749f\_img.jpg\)](#)

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

$$\text{ex } 12\text{m} = \frac{24\text{m}}{2}$$

27) Inradius of Octagon given Width [Open Calculator !\[\]\(d3102649f02e825ddb76dc3de0190154\_img.jpg\)](#)

$$\text{fx } r_i = \frac{w}{2}$$

$$\text{ex } 12\text{m} = \frac{24\text{m}}{2}$$



## Width of Octagon

### 28) Width of Octagon

$$fx \quad w = (\sqrt{2} + 1) \cdot l_e$$

[Open Calculator !\[\]\(339a16584d5da0f0a3ca4e9ec17bf6a1\_img.jpg\)](#)

$$ex \quad 24.14214m = (\sqrt{2} + 1) \cdot 10m$$

### 29) Width of Octagon given Circumradius

$$fx \quad w = (\sqrt{2} + 1) \cdot \left( \sqrt{2 - \sqrt{2}} \right) \cdot r_c$$

[Open Calculator !\[\]\(6059a5aa8b4ca7bb793408023d6c6e42\_img.jpg\)](#)

$$ex \quad 24.02087m = (\sqrt{2} + 1) \cdot \left( \sqrt{2 - \sqrt{2}} \right) \cdot 13m$$

### 30) Width of Octagon given Medium Diagonal

$$fx \quad w = 1 \cdot d_{\text{Medium}}$$

[Open Calculator !\[\]\(e3275251d0893157c3584e20c81dc3ba\_img.jpg\)](#)

$$ex \quad 24m = 1 \cdot 24m$$

### 31) Width of Octagon given Perimeter

$$fx \quad w = (\sqrt{2} + 1) \cdot \frac{P}{8}$$

[Open Calculator !\[\]\(eabd9f9ababee93effadc3b380fe65fd\_img.jpg\)](#)

$$ex \quad 24.14214m = (\sqrt{2} + 1) \cdot \frac{80m}{8}$$





## Variables Used

- **A** Area of Octagon (*Square Meter*)
- **d<sub>Long</sub>** Long Diagonal of Octagon (*Meter*)
- **d<sub>Medium</sub>** Medium Diagonal of Octagon (*Meter*)
- **d<sub>Short</sub>** Short Diagonal of Octagon (*Meter*)
- **h** Height of Octagon (*Meter*)
- **l<sub>e</sub>** Edge Length of Octagon (*Meter*)
- **P** Perimeter of Octagon (*Meter*)
- **r<sub>c</sub>** Circumradius of Octagon (*Meter*)
- **r<sub>i</sub>** Inradius of Octagon (*Meter*)
- **w** Width of Octagon (*Meter*)



## Constants, Functions, Measurements used



- **Function:** **sqrt**, sqrt(Number)  
*Square root function*
- **Measurement:** **Length** in Meter (m)  
*Length Unit Conversion* 
- **Measurement:** **Area** in Square Meter (m<sup>2</sup>)  
*Area 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](#)
- [Isosceles Trapezoid Formulas](#)
- [Koch Curve Formulas](#)
- [L Shape Formulas](#)
- [Line Formulas](#)
- [Lune Formulas](#)
- [N-gon Formulas](#)
- [Nonagon Formulas](#)
- [Octagon Formulas](#)
- [Octagram Formulas](#)
- [Open Frame Formulas](#)
- [Parallelogram Formulas](#)
- [Pentagon Formulas](#)
- [Pentagram Formulas](#)
- [Polygram Formulas](#)
- [Quadrilateral Formulas](#)
- [Quarter Circle Formulas](#)
- [Rectangle Formulas](#)



- **Rectangular Hexagon Formulas** 
- **Regular Polygon Formulas** 
- **Reuleaux Triangle Formulas** 
- **Rhombus Formulas** 
- **Right Trapezoid Formulas** 
- **Round Corner Formulas** 
- **Salinon Formulas** 
- **Semicircle Formulas** 
- **Sharp Kink Formulas** 
- **Square Formulas** 
- **Star of Lakshmi Formulas** 
- **Stretched Hexagon Formulas** 
- **T Shape Formulas** 
- **Tangential Quadrilateral Formulas** 
- **Trapezoid Formulas** 
- **Tricorn Formulas** 
- **Tri-equilateral Trapezoid Formulas** 
- **Truncated Square Formulas** 
- **Unicursal Hexagram Formulas** 
- **X Shape Formulas** 

Feel free to SHARE this document with your friends!

**PDF Available in**

[English](#) [Spanish](#) [French](#) [German](#) [Russian](#) [Italian](#) [Portuguese](#) [Polish](#) [Dutch](#)

5/17/2023 | 6:44:11 AM UTC

[Please leave your feedback here...](#)

