



Important Formulas of Octagon

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List of 31 Important Formulas of Octagon

Important Formulas of Octagon

Area of Octagon G

1) Area of Octagon

$$\mathbf{K} \mathbf{A} = 2 \cdot \left(1 + \sqrt{2}
ight) \cdot \mathbf{l}_{\mathrm{e}}^2$$

Open Calculator

$$=$$
 $482.8427 ext{m}^2 = 2 \cdot \left(1 + \sqrt{2}\right) \cdot (10 ext{m})^2$

2) Area of Octagon given Circumradius

fx
$$A=2\cdot\sqrt{2}\cdot r_{c}^{2}$$

Open Calculator 🗗

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

3) Area of Octagon given Edge Length and Inradius

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

Open Calculator 🖸

$$\boxed{\texttt{ex}} \ 480 \text{m}^{_2} = 4 \cdot 10 \text{m} \cdot 12 \text{m}$$



Open Calculator 2

Open Calculator

Open Calculator

Open Calculator

4) Area of Octagon given Height

 \mathbf{f} $\mathbf{A} = 2 \cdot \left(\sqrt{2} - 1\right) \cdot \mathbf{h}^2$

 $\texttt{ex} \hspace{0.1cm} 477.174 \mathrm{m}^{\scriptscriptstyle 2} = 2 \cdot \left(\sqrt{2} - 1\right) \cdot (24 \mathrm{m})^{\scriptscriptstyle 2}$

5) Area of Octagon given Perimeter 🗗

 $\mathbf{A} = \left(1 + \sqrt{2}\right) \cdot rac{\mathrm{P}^2}{22}$

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

Diagonal of Octagon

6) Long Diagonal of Octagon 💪

 $\mathrm{d}_{\mathrm{Long}} = \sqrt{4 + \left(2 \cdot \sqrt{2}
ight) \cdot \mathrm{l_e}}$

 \mathbf{ex} $26.13126\mathrm{m} = \sqrt{4 + \left(2 \cdot \sqrt{2}\right) \cdot 10\mathrm{m}}$

- 7) Long Diagonal of Octagon given Circumradius 💪

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

 $\mathbf{ex} \ 26\mathrm{m} = 2 \cdot 13\mathrm{m}$







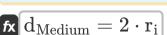
8) Medium Diagonal of Octagon 🛂

$$ext{d}_{ ext{Medium}} = \left(1 + \sqrt{2}
ight) \cdot l_{ ext{e}}$$

Open Calculator 🗗

$$=$$
 $24.14214 \mathrm{m} = \left(1 + \sqrt{2}\right) \cdot 10 \mathrm{m}$

9) Medium Diagonal of Octagon given Inradius



$$\boxed{\text{ex} \ 24\text{m} = 2 \cdot 12\text{m}}$$

10) Short Diagonal of Octagon

$$ext{d}_{ ext{Short}} = \sqrt{2 + \sqrt{2} \cdot ext{l}_{ ext{e}}}$$

Open Calculator 🗗

$\boxed{18.47759\mathrm{m} = \sqrt{2+\sqrt{2}\cdot10\mathrm{m}}}$

11) Short Diagonal of Octagon given Area

$${f d}_{
m Short} = \sqrt{rac{A}{\sqrt{2}}}$$

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



Edge Length of Octagon 🗗

12) Edge Length of Octagon given Area

$$\mathrm{fz}$$
 $\mathrm{l_e} = \sqrt{\left(\sqrt{2}-1
ight)\cdot\left(rac{\mathrm{A}}{2}
ight)}$

Open Calculator 🚰

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

13) Edge Length of Octagon given Circumradius

$$\mathbf{k}
vert_{\mathrm{e}} = \left(\sqrt{2-\sqrt{2}}
ight) \cdot \mathrm{r_c}$$

Open Calculator

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

14) Edge Length of Octagon given Height

$$m l_e = \left(\sqrt{2}-1
ight)\cdot h$$

$$oxed{ex} 9.941125 \mathrm{m} = \left(\sqrt{2}-1
ight) \cdot 24 \mathrm{m}$$



15) Edge Length of Octagon given Long Diagonal

Open Calculator

Open Calculator

Open Calculator G

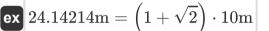
 $\left|\mathbf{l}_{\mathrm{e}}
ight|=\left(rac{\sqrt{2}-\sqrt{\overline{2}}}{2}
ight)\cdot d_{\mathrm{Long}}$

$$oxed{ex} 9.949769 \mathrm{m} = \left(rac{\sqrt{2-\sqrt{2}}}{2}
ight) \cdot 26 \mathrm{m}$$

Height of Octagon G

16) Height of Octagon 💪

fx $\mathrm{h} = \left(1 + \sqrt{2}\right) \cdot \mathrm{l_e}$



17) Height of Octagon given Area

$$\mathbf{f}$$
 $\mathbf{h} = \sqrt{\left(rac{1+\sqrt{2}}{2}
ight)\cdot\mathbf{A}}$

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



18) Height of Octagon given Medium Diagonal

fx $h = d_{ ext{Medium}} \cdot 1$ $|\mathbf{ex}| 24\mathbf{m} = 24\mathbf{m} \cdot 1$

Open Calculator 2

Open Calculator

Open Calculator

Open Calculator

19) Height of Octagon given Perimeter 🔽

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

ex $24.14214\text{m} = \left(1 + \sqrt{2}\right) \cdot \frac{80\text{m}}{9}$

Perimeter of Octagon G

20) Perimeter of Octagon

fx $P=8\cdot l_{
m e}$

$\mathbf{ex} \ 80 \mathrm{m} = 8 \cdot 10 \mathrm{m}$ 21) Perimeter of Octagon given Circumradius

$ext{P} = rac{16 \cdot ext{r}_{ ext{c}}}{\sqrt{4 + \left(2 \cdot \sqrt{2} ight)}}$

$$79.59815\mathrm{m} = \frac{16\cdot13\mathrm{m}}{\sqrt{4+\left(2\cdot\sqrt{2}\right)}}$$



22) Perimeter of Octagon given Inradius 🗗

 $ext{P} = rac{16 \cdot ext{r}_{ ext{i}}}{1 + \sqrt{2}}$

Open Calculator

Open Calculator 2

Open Calculator 🕝

$$79.529 ext{m} = rac{16 \cdot 12 ext{m}}{1 + \sqrt{2}}$$

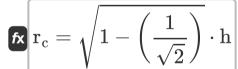
Radius of Octagon 🗗

23) Circumradius of Octagon

 $\mathbf{r}_{\mathrm{c}} = \sqrt{1 + \left(rac{1}{\sqrt{2}}
ight)} \cdot l_{\mathrm{e}}$

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

24) Circumradius of Octagon given Height



 $oxed{ex} 12.98871 \mathrm{m} = \sqrt{1-\left(rac{1}{\sqrt{2}}
ight) \cdot 24 \mathrm{m}}$



25) Inradius of Octagon

 $\mathbf{r}_{\mathrm{i}} = \left(rac{1+\sqrt{2}}{2}
ight) \cdot \mathrm{l}_{\mathrm{e}}$

Open Calculator 🗗

ex $12.07107\mathrm{m} = \left(rac{1+\sqrt{2}}{2}
ight)\cdot 10\mathrm{m}$

26) Inradius of Octagon given Height 🗗

 $\mathbf{f}_{\mathbf{i}} = \frac{\mathbf{n}}{2}$

Open Calculator

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

27) Inradius of Octagon given Width

 $\mathbf{f}_{\mathbf{i}} = rac{\mathbf{w}}{2}$

Open Calculator 🖸

 $\boxed{12m = \frac{24m}{2}}$



Open Calculator 🖸

Open Calculator

Open Calculator

Open Calculator 2

Width of Octagon G

28) Width of Octagon 🖸

$$\mathbf{k} = \left(\sqrt{2} + 1\right) \cdot l_{\mathrm{e}}$$

$$\mathbf{ex} \left[24.14214 \mathrm{m} = \left(\sqrt{2} + 1
ight) \cdot 10 \mathrm{m}
ight]$$

$$\mathbf{fx} = \left(\sqrt{2} + 1
ight) \cdot \left(\sqrt{2 - \sqrt{2}}
ight) \cdot \mathbf{r_c}$$

30) Width of Octagon given Medium Diagonal 🗗

fx
$$m w = 1 \cdot d_{Medium}$$



$|\mathbf{ex}| 24\mathbf{m} = 1 \cdot 24\mathbf{m}$

31) Width of Octagon given Perimeter 🛂

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







Variables Used

- A Area of Octagon (Square Meter)
- d_{Long} Long Diagonal of Octagon (Meter)
- d_{Medium} Medium Diagonal of Octagon (Meter)
- d_{Short} Short Diagonal of Octagon (Meter)
- **h** Height of Octagon (Meter)
- le Edge Length of Octagon (Meter)
- P Perimeter of Octagon (Meter)
- **r**_c Circumradius of Octagon (*Meter*)
- r_i 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 (m²)

 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

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