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Important Formulas of Hendecagon

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List of 30 Important Formulas of Hendecagon

Important Formulas of Hendecagon

1) Area of Hendecagon

Open Calculator

fx $$A = \frac{11}{4} \cdot \frac{S^2}{\tan\left(\frac{\pi}{11}\right)}$$

ex $$234.141\text{m}^2 = \frac{11}{4} \cdot \frac{(5\text{m})^2}{\tan\left(\frac{\pi}{11}\right)}$$

2) Area of Hendecagon given Height

Open Calculator

fx $$A = 11 \cdot \frac{\left(h \cdot \tan\left(\frac{\pi}{22}\right)\right)^2}{\tan\left(\frac{\pi}{11}\right)}$$

ex $$223.8113\text{m}^2 = 11 \cdot \frac{\left(17\text{m} \cdot \tan\left(\frac{\pi}{22}\right)\right)^2}{\tan\left(\frac{\pi}{11}\right)}$$

3) Area of Hendecagon given Perimeter

Open Calculator

fx $$A = \frac{P^2}{44 \cdot \tan\left(\frac{\pi}{11}\right)}$$

ex $$234.141\text{m}^2 = \frac{(55\text{m})^2}{44 \cdot \tan\left(\frac{\pi}{11}\right)}$$

4) Circumradius of Hendecagon

Open Calculator

fx $$r_c = \frac{S}{2 \cdot \sin\left(\frac{\pi}{11}\right)}$$

ex $$8.873664\text{m} = \frac{5\text{m}}{2 \cdot \sin\left(\frac{\pi}{11}\right)}$$

5) Circumradius of Hendecagon given Area

Open Calculator

fx $$r_c = \frac{\sqrt{A \cdot \frac{4 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}}{2 \cdot \sin\left(\frac{\pi}{11}\right)}$$

ex $$8.889927\text{m} = \frac{\sqrt{235\text{m}^2 \cdot \frac{4 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}}{2 \cdot \sin\left(\frac{\pi}{11}\right)}$$

6) Circumradius of Hendecagon given Diagonal across Four Sides

Open Calculator

fx $$r_c = \frac{d_4}{2 \cdot \sin\left(\frac{4 \cdot \pi}{11}\right)}$$

ex $$8.794765\text{m} = \frac{16\text{m}}{2 \cdot \sin\left(\frac{4 \cdot \pi}{11}\right)}$$

7) Circumradius of Hendecagon given Diagonal across Two Sides

Open Calculator

fx $$r_c = \frac{d_2}{2 \cdot \sin\left(\frac{2 \cdot \pi}{11}\right)}$$

ex $$9.248284\text{m} = \frac{10\text{m}}{2 \cdot \sin\left(\frac{2 \cdot \pi}{11}\right)}$$

8) Circumradius of Hendecagon given Inradius

Open Calculator

fx $$r_c = \frac{\tan\left(\frac{\pi}{11}\right) \cdot r_i}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$8.337737\text{m} = \frac{\tan\left(\frac{\pi}{11}\right) \cdot 8\text{m}}{\sin\left(\frac{\pi}{11}\right)}$$

9) Diagonal of Hendecagon across Five Sides

Open Calculator

fx $$d_5 = \frac{S \cdot \sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$17.56669\text{m} = \frac{5\text{m} \cdot \sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

10) Diagonal of Hendecagon across Five Sides given Diagonal across Two Sides

Open Calculator

fx $$d_5 = d_2 \cdot \frac{\sin\left(\frac{5\cdot\pi}{11}\right)}{\sin\left(\frac{2\cdot\pi}{11}\right)}$$

ex $$18.3083\text{m} = 10\text{m} \cdot \frac{\sin\left(\frac{5\cdot\pi}{11}\right)}{\sin\left(\frac{2\cdot\pi}{11}\right)}$$

11) Diagonal of Hendecagon across Four Sides

Open Calculator

fx $$d_4 = \frac{S \cdot \sin\left(\frac{4\cdot\pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$16.14354\text{m} = \frac{5\text{m} \cdot \sin\left(\frac{4\cdot\pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

12) Diagonal of Hendecagon across Four Sides given Width

Open Calculator

fx $$d_4 = W \cdot \frac{\sin\left(\frac{4\cdot\pi}{11}\right)}{\sin\left(\frac{5\cdot\pi}{11}\right)}$$

ex $$16.54175\text{m} = 18\text{m} \cdot \frac{\sin\left(\frac{4\cdot\pi}{11}\right)}{\sin\left(\frac{5\cdot\pi}{11}\right)}$$

13) Diagonal of Hendecagon across Three Sides

Open Calculator

fx $$d_3 = \frac{S \cdot \sin\left(\frac{3 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$13.41254\text{m} = \frac{5\text{m} \cdot \sin\left(\frac{3 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

14) Diagonal of Hendecagon across Three Sides given Circumradius

Open Calculator

fx $$d_3 = 2 \cdot r_c \cdot \sin\left(\frac{3 \cdot \pi}{11}\right)$$

ex $$13.60349\text{m} = 2 \cdot 9\text{m} \cdot \sin\left(\frac{3 \cdot \pi}{11}\right)$$

15) Diagonal of Hendecagon across Two Sides

Open Calculator

fx $$d_2 = \frac{S \cdot \sin\left(\frac{2 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$9.59493\text{m} = \frac{5\text{m} \cdot \sin\left(\frac{2 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

16) Diagonal of Hendecagon across Two Sides given Inradius

Open Calculator

fx $$d_2 = 2 \cdot \tan\left(\frac{\pi}{11}\right) \cdot r_i \cdot \frac{\sin\left(\frac{2 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$9.015442\text{m} = 2 \cdot \tan\left(\frac{\pi}{11}\right) \cdot 8\text{m} \cdot \frac{\sin\left(\frac{2 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

17) Height of Hendecagon

Open Calculator

fx $$h = \frac{S}{2 \cdot \tan\left(\frac{\pi}{22}\right)}$$

ex $$17.38788\text{m} = \frac{5\text{m}}{2 \cdot \tan\left(\frac{\pi}{22}\right)}$$

18) Height of Hendecagon given Area

Open Calculator

fx $$h = \frac{\sqrt{A \cdot \frac{4 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}}{2 \cdot \tan\left(\frac{\pi}{22}\right)}$$

ex $$17.41975\text{m} = \frac{\sqrt{235\text{m}^2 \cdot \frac{4 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}}{2 \cdot \tan\left(\frac{\pi}{22}\right)}$$

19) Inradius of Hendecagon

Open Calculator

fx $$r_i = \frac{S}{2 \cdot \tan\left(\frac{\pi}{11}\right)}$$

ex $$8.514218\text{m} = \frac{5\text{m}}{2 \cdot \tan\left(\frac{\pi}{11}\right)}$$

20) Inradius of Hendecagon given Area

Open Calculator

fx $$r_i = \frac{\sqrt{A \cdot \frac{4 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}}{2 \cdot \tan\left(\frac{\pi}{11}\right)}$$

ex $$8.529822\text{m} = \frac{\sqrt{235\text{m}^2 \cdot \frac{4 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}}{2 \cdot \tan\left(\frac{\pi}{11}\right)}$$

21) Inradius of Hendecagon given Width

Open Calculator

fx $$r_i = \frac{\left(\frac{W \cdot \sin\left(\frac{\pi}{11}\right)}{\sin\left(\frac{5 \cdot \pi}{11}\right)}\right)}{2 \cdot \tan\left(\frac{\pi}{11}\right)}$$

ex $$8.724237\text{m} = \frac{\left(\frac{18\text{m} \cdot \sin\left(\frac{\pi}{11}\right)}{\sin\left(\frac{5 \cdot \pi}{11}\right)}\right)}{2 \cdot \tan\left(\frac{\pi}{11}\right)}$$

22) Perimeter of Hendecagon

Open Calculator

fx $$P = 11 \cdot S$$

ex $$55\text{m} = 11 \cdot 5\text{m}$$

23) Perimeter of Hendecagon given Area

Open Calculator

fx $$P = 11 \cdot \sqrt{\frac{4 \cdot A \cdot \tan\left(\frac{\pi}{11}\right)}{11}}$$

ex $$55.1008\text{m} = 11 \cdot \sqrt{\frac{4 \cdot 235\text{m}^2 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}$$

24) Perimeter of Hendecagon given Width

Open Calculator

fx $$P = 11 \cdot W \cdot \left(\frac{\sin\left(\frac{\pi}{11}\right)}{\sin\left(\frac{5 \cdot \pi}{11}\right)}\right)$$

ex $$56.35668\text{m} = 11 \cdot 18\text{m} \cdot \left(\frac{\sin\left(\frac{\pi}{11}\right)}{\sin\left(\frac{5 \cdot \pi}{11}\right)}\right)$$

25) Side of Hendecagon

Open Calculator

$$S = \sqrt{\frac{4 \cdot A \cdot \tan\left(\frac{\pi}{11}\right)}{11}}$$

$$5.009163\text{m} = \sqrt{\frac{4 \cdot 235\text{m}^2 \cdot \tan\left(\frac{\pi}{11}\right)}{11}}$$

26) Side of Hendecagon given Circumradius

Open Calculator

$$S = 2 \cdot r_c \cdot \sin\left(\frac{\pi}{11}\right)$$

$$5.071186\text{m} = 2 \cdot 9\text{m} \cdot \sin\left(\frac{\pi}{11}\right)$$

27) Side of Hendecagon given Height

Open Calculator

$$S = 2 \cdot h \cdot \tan\left(\frac{\pi}{22}\right)$$

$$4.888462\text{m} = 2 \cdot 17\text{m} \cdot \tan\left(\frac{\pi}{22}\right)$$

28) Width of Hendecagon

Open Calculator

$$W = \frac{S \cdot \sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

$$17.56669\text{m} = \frac{5\text{m} \cdot \sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

29) Width of Hendecagon given Area

Open Calculator

fx $$W = 2 \cdot \sqrt{A \cdot \frac{\tan\left(\frac{\pi}{11}\right)}{11} \cdot \frac{\sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}}$$

ex $$17.59888\text{m} = 2 \cdot \sqrt{235\text{m}^2 \cdot \frac{\tan\left(\frac{\pi}{11}\right)}{11} \cdot \frac{\sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}}$$

30) Width of Hendecagon given Perimeter

Open Calculator

fx $$W = \left(\frac{P}{11}\right) \cdot \frac{\sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

ex $$17.56669\text{m} = \left(\frac{55\text{m}}{11}\right) \cdot \frac{\sin\left(\frac{5 \cdot \pi}{11}\right)}{\sin\left(\frac{\pi}{11}\right)}$$

Variables Used

- **A** Area of Hendecagon *(Square Meter)*
- d_2 Diagonal across Two Sides of Hendecagon *(Meter)*
- d_3 Diagonal across Three Sides of Hendecagon *(Meter)*
- d_4 Diagonal across Four Sides of Hendecagon *(Meter)*
- d_5 Diagonal across Five Sides of Hendecagon *(Meter)*
- **h** Height of Hendecagon *(Meter)*
- **P** Perimeter of Hendecagon *(Meter)*
- r_c Circumradius of Hendecagon *(Meter)*
- r_i Inradius of Hendecagon *(Meter)*
- **S** Side of Hendecagon *(Meter)*
- **W** Width of hendecagon *(Meter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **sin**, sin(Angle)
  Sine is a trigonometric function that describes the ratio of the length of the opposite side of a right triangle to the length of the hypotenuse.
- Function: **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.
- Function: **tan**, tan(Angle)
  The tangent of an angle is a trigonometric ratio of the length of the side opposite an angle to the length of the side adjacent to an angle in a right triangle.
- 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 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
- L Shape Formulas
- Line Formulas
- N-gon Formulas
- Nonagon Formulas
- Octagon Formulas
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- Quarter Circle Formulas
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- 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
- T Shape Formulas
- Tangential Quadrilateral Formulas
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