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Important Formulas of Annulus

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List of 25 Important Formulas of Annulus

Important Formulas of Annulus

Annulus

Area of Annulus

1) Area of Annulus

Open Calculator

fx $A = \pi \cdot \left(r_{Outer}^2 - r_{Inner}^2\right)$

ex $201.0619\text{m}^2 = \pi \cdot \left((10\text{m})^2 - (6\text{m})^2\right)$

2) Area of Annulus given Breadth and Inner Circle Radius

Open Calculator

fx $A = \pi \cdot b \cdot \left(b + 2 \cdot r_{Inner}\right)$

ex $201.0619\text{m}^2 = \pi \cdot 4\text{m} \cdot (4\text{m} + 2 \cdot 6\text{m})$

3) Area of Annulus given Breadth and Outer Circle Radius

Open Calculator

fx $A = \pi \cdot b \cdot \left(2 \cdot r_{Outer} - b\right)$

ex $201.0619\text{m}^2 = \pi \cdot 4\text{m} \cdot (2 \cdot 10\text{m} - 4\text{m})$

Breadth of Annulus

4) Breadth of Annulus

Open Calculator

fx $b = r_{Outer} - r_{Inner}$

ex $4m = 10m - 6m$

5) Breadth of Annulus given Area and Inner Circle Radius

Open Calculator

fx $b = \sqrt{\frac{A}{\pi} + r_{Inner}^2} - r_{Inner}$

ex $3.983085m = \sqrt{\frac{200m^2}{\pi} + (6m)^2} - (6m)$

6) Breadth of Annulus given Area and Outer Circle Radius

Open Calculator

fx $b = r_{Outer} - \sqrt{r_{Outer}^2 - \frac{A}{\pi}}$

ex $3.971897m = (10m) - \sqrt{(10m)^2 - \frac{200m^2}{\pi}}$

Longest Interval of Annulus

7) Longest Interval of Annulus

Open Calculator

fx $l = 2 \cdot \sqrt{r_{Outer}^2 - r_{Inner}^2}$

ex $16m = 2 \cdot \sqrt{(10m)^2 - (6m)^2}$

8) Longest Interval of Annulus given Breadth and Inner Circle Radius

Open Calculator

fx $l = 2 \cdot \sqrt{b \cdot (b + 2 \cdot r_{Inner})}$

ex $16m = 2 \cdot \sqrt{4m \cdot (4m + 2 \cdot 6m)}$

9) Longest Interval of Annulus given Breadth and Outer Circle Radius

Open Calculator

fx $l = 2 \cdot \sqrt{b \cdot (2 \cdot r_{Outer} - b)}$

ex $16m = 2 \cdot \sqrt{4m \cdot (2 \cdot 10m - 4m)}$

Perimeter of Annulus

10) Perimeter of Annulus

Open Calculator

fx $P = 2 \cdot \pi \cdot (r_{Outer} + r_{Inner})$

ex $100.531m = 2 \cdot \pi \cdot (10m + 6m)$

11) Perimeter of Annulus given Breadth and Inner Circle Radius

Open Calculator

fx $P = 2 \cdot \pi \cdot (b + 2 \cdot r_{Inner})$

ex $100.531m = 2 \cdot \pi \cdot (4m + 2 \cdot 6m)$

12) Perimeter of Annulus given Breadth and Outer Circle Radius

Open Calculator

fx $P = 2 \cdot \pi \cdot (2 \cdot r_{Outer} - b)$

ex $100.531m = 2 \cdot \pi \cdot (2 \cdot 10m - 4m)$

Radius of Annulus

13) Radius of Inner Circle of Annulus given Area and Breadth

Open Calculator

fx $$r_{Inner} = \frac{\left(\frac{\left(\frac{A}{\pi}\right)}{b}\right) - b}{2}$$

ex $$5.957747m = \frac{\left(\frac{\left(\frac{200m^2}{\pi}\right)}{4m}\right) - 4m}{2}$$

14) Radius of Inner Circle of Annulus given Outer Circle Radius and Area

Open Calculator

fx $$r_{Inner} = \sqrt{r_{Outer}^2 - \frac{A}{\pi}}$$

ex $$6.028103m = \sqrt{(10m)^2 - \frac{200m^2}{\pi}}$$

15) Radius of Inner Circle of Annulus given Outer Circle Radius and Breadth

Open Calculator

fx $$r_{Inner} = r_{Outer} - b$$

ex $$6m = 10m - 4m$$

16) Radius of Outer Circle of Annulus given Area and Breadth

Open Calculator

fx $$r_{Outer} = \frac{\left(\frac{\left(\frac{A}{\pi}\right)}{b}\right) + b}{2}$$

ex $$9.957747\text{m} = \frac{\left(\frac{\left(\frac{200\text{m}^2}{\pi}\right)}{4\text{m}}\right) + 4\text{m}}{2}$$

17) Radius of Outer Circle of Annulus given Inner Circle Radius and Area

Open Calculator

fx $$r_{Outer} = \sqrt{\frac{A}{\pi} + r_{Inner}^2}$$

ex $$9.983085\text{m} = \sqrt{\frac{200\text{m}^2}{\pi} + (6\text{m})^2}$$

18) Radius of Outer Circle of Annulus given Inner Circle Radius and Breadth

Open Calculator

fx $$r_{Outer} = b + r_{Inner}$$

ex $$10\text{m} = 4\text{m} + 6\text{m}$$

Annulus Sector

19) Area of Annulus Sector

Open Calculator

fx $$A_{Sector} = \left(r_{Outer}^2 - r_{Inner}^2\right) \cdot \frac{\angle_{Central(Sector)}}{2}$$

ex $$16.75516\text{m}^2 = \left((10\text{m})^2 - (6\text{m})^2\right) \cdot \frac{30^\circ}{2}$$

20) Central Angle of Annulus Sector given Inner Arc Length

Open Calculator

fx $$\angle_{Central(Sector)} = \frac{l_{Inner\ Arc(Sector)}}{r_{Inner}}$$

ex $$28.64789^\circ = \frac{3\text{m}}{6\text{m}}$$

21) Central Angle of Annulus Sector given Outer Arc Length

Open Calculator

fx $$\angle_{Central(Sector)} = \frac{l_{Outer\ Arc(Sector)}}{r_{Outer}}$$

ex $$28.64789^\circ = \frac{5\text{m}}{10\text{m}}$$

22) Diagonal of Annulus Sector

Open Calculator

fx $$d_{Sector} = \sqrt{r_{Outer}^2 + r_{Inner}^2 - 2 \cdot r_{Outer} \cdot r_{Inner} \cdot \cos\left(\angle_{Central(Sector)}\right)}$$

ex $$5.663652\text{m} = \sqrt{(10\text{m})^2 + (6\text{m})^2 - 2 \cdot (10\text{m}) \cdot (6\text{m}) \cdot \cos(30^\circ)}$$

23) Inner Arc Length of Annulus Sector

Open Calculator

fx $$l_{\text{Inner Arc(Sector)}} = r_{\text{Inner}} \cdot \angle_{\text{Central(Sector)}}$$

ex $$3.141593\text{m} = 6\text{m} \cdot 30^\circ$$

24) Outer Arc Length of Annulus Sector

Open Calculator

fx $$l_{\text{Outer Arc(Sector)}} = r_{\text{Outer}} \cdot \angle_{\text{Central(Sector)}}$$

ex $$5.235988\text{m} = 10\text{m} \cdot 30^\circ$$

25) Perimeter of Annulus Sector

Open Calculator

fx $$P_{\text{Sector}} = l_{\text{Outer Arc(Sector)}} + l_{\text{Inner Arc(Sector)}} + (2 \cdot b)$$

ex $$16\text{m} = 5\text{m} + 3\text{m} + (2 \cdot 4\text{m})$$

Variables Used

- $\angle_{Central(Sector)}$ Central Angle of Annulus Sector *(Degree)*
- **A** Area of Annulus *(Square Meter)*
- A_{Sector} Area of Annulus Sector *(Square Meter)*
- **b** Breadth of Annulus *(Meter)*
- d_{Sector} Diagonal of Annulus Sector *(Meter)*
- **l** Longest Interval of Annulus *(Meter)*
- $l_{Inner\ Arc(Sector)}$ Inner Arc Length of Annulus Sector *(Meter)*
- $l_{Outer\ Arc(Sector)}$ Outer Arc Length of Annulus Sector *(Meter)*
- **P** Perimeter of Annulus *(Meter)*
- P_{Sector} Perimeter of Annulus Sector *(Meter)*
- r_{Inner} Inner Circle Radius of Annulus *(Meter)*
- r_{Outer} Outer Circle Radius of Annulus *(Meter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **cos**, cos(Angle)
  Trigonometric cosine function
- Function: **sqrt**, sqrt(Number)
  Square root 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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- L Shape Formulas
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- Regular Polygon Formulas
- Reuleaux Triangle Formulas
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- Right Trapezoid Formulas

- Round Corner Formulas
- Salinon Formulas
- Semicircle Formulas
- Sharp Kink Formulas
- Square Formulas
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- 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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