

Important Formulas of Toroid and Toroid Sector PDF



**Formulas
Examples
with Units**

List of 17 Important Formulas of Toroid and Toroid Sector

1) Total Surface Area of Toroid Formulas

1.1) Total Surface Area of Toroid Formula

Formula

$$TSA = (2 \cdot \pi \cdot r \cdot P_{\text{Cross Section}})$$

Example with Units

$$1884.9556 \text{ m}^2 = (2 \cdot 3.1416 \cdot 10 \text{ m} \cdot 30 \text{ m})$$

Evaluate Formula 

1.2) Total Surface Area of Toroid given Volume Formula

Formula

$$TSA = (2 \cdot \pi \cdot P_{\text{Cross Section}}) \cdot \left(\frac{V}{2 \cdot \pi \cdot A_{\text{Cross Section}}} \right)$$

Evaluate Formula 

Example with Units

$$1890 \text{ m}^2 = (2 \cdot 3.1416 \cdot 30 \text{ m}) \cdot \left(\frac{3150 \text{ m}^3}{2 \cdot 3.1416 \cdot 50 \text{ m}^2} \right)$$

2) Volume of Toroid Formulas

2.1) Volume of Toroid Formula

Formula

$$V = (2 \cdot \pi \cdot r \cdot A_{\text{Cross Section}})$$

Example with Units

$$3141.5927 \text{ m}^3 = (2 \cdot 3.1416 \cdot 10 \text{ m} \cdot 50 \text{ m}^2)$$

Evaluate Formula 

2.2) Volume of Toroid given Total Surface Area Formula

Formula

$$V = (2 \cdot \pi \cdot A_{\text{Cross Section}}) \cdot \left(\frac{TSA}{2 \cdot \pi \cdot P_{\text{Cross Section}}} \right)$$

Evaluate Formula 

Example with Units

$$3166.6667 \text{ m}^3 = (2 \cdot 3.1416 \cdot 50 \text{ m}^2) \cdot \left(\frac{1900 \text{ m}^2}{2 \cdot 3.1416 \cdot 30 \text{ m}} \right)$$



3) Cross Sectional Area of Toroid Formulas

3.1) Cross Sectional Area of Toroid Formula

Formula

$$A_{\text{Cross Section}} = \left(\frac{V}{2 \cdot \pi \cdot r} \right)$$

Example with Units

$$50.1338 \text{ m}^2 = \left(\frac{3150 \text{ m}^3}{2 \cdot 3.1416 \cdot 10 \text{ m}} \right)$$

Evaluate Formula 

3.2) Cross Sectional Area of Toroid given Volume and Total Surface Area Formula

Formula

$$A_{\text{Cross Section}} = \left(\frac{V}{2 \cdot \pi \cdot \left(\frac{\text{TSA}}{2 \cdot \pi \cdot P_{\text{Cross Section}}} \right)} \right)$$

Example with Units

$$49.7368 \text{ m}^2 = \left(\frac{3150 \text{ m}^3}{2 \cdot 3.1416 \cdot \left(\frac{1900 \text{ m}^2}{2 \cdot 3.1416 \cdot 30 \text{ m}} \right)} \right)$$

Evaluate Formula 

4) Cross Sectional Perimeter of Toroid Formulas

4.1) Cross Sectional Perimeter of Toroid Formula

Formula

$$P_{\text{Cross Section}} = \left(\frac{\text{TSA}}{2 \cdot \pi \cdot r} \right)$$

Example with Units

$$30.2394 \text{ m} = \left(\frac{1900 \text{ m}^2}{2 \cdot 3.1416 \cdot 10 \text{ m}} \right)$$

Evaluate Formula 

4.2) Cross Sectional Perimeter of Toroid given Total Surface Area and Volume Formula

Formula

$$P_{\text{Cross Section}} = \left(\frac{\text{TSA}}{2 \cdot \pi \cdot \left(\frac{V}{2 \cdot \pi \cdot A_{\text{Cross Section}}} \right)} \right)$$

Example with Units

$$30.1587 \text{ m} = \left(\frac{1900 \text{ m}^2}{2 \cdot 3.1416 \cdot \left(\frac{3150 \text{ m}^3}{2 \cdot 3.1416 \cdot 50 \text{ m}^2} \right)} \right)$$

Evaluate Formula 



5) Radius of Toroid Formulas ↻

5.1) Radius of Toroid Formula ↻

Formula

$$r = \left(\frac{TSA}{2 \cdot \pi \cdot P_{\text{Cross Section}}} \right)$$

Example with Units

$$10.0798\text{m} = \left(\frac{1900\text{m}^2}{2 \cdot 3.1416 \cdot 30\text{m}} \right)$$

Evaluate Formula ↻

5.2) Radius of Toroid given Volume Formula ↻

Formula

$$r = \left(\frac{V}{2 \cdot \pi \cdot A_{\text{Cross Section}}} \right)$$

Example with Units

$$10.0268\text{m} = \left(\frac{3150\text{m}^3}{2 \cdot 3.1416 \cdot 50\text{m}^2} \right)$$

Evaluate Formula ↻

6) Toroid Sector Formulas ↻

6.1) Cross Sectional Area of Toroid given Total Surface Area of Toroid Sector Formula ↻

Formula

$$A_{\text{Cross Section}} = \left(\frac{TSA_{\text{Sector}} - \left(2 \cdot \pi \cdot r \cdot P_{\text{Cross Section}} \cdot \left(\frac{\angle_{\text{Intersection}}}{2 \cdot \pi} \right) \right)}{2} \right)$$

Evaluate Formula ↻

Example with Units

$$53.7611\text{m}^2 = \left(\frac{1050\text{m}^2 - \left(2 \cdot 3.1416 \cdot 10\text{m} \cdot 30\text{m} \cdot \left(\frac{180^\circ}{2 \cdot 3.1416} \right) \right)}{2} \right)$$

6.2) Cross Sectional Area of Toroid given Volume of Toroid Sector Formula ↻

Formula

$$A_{\text{Cross Section}} = \left(\frac{V_{\text{Sector}}}{2 \cdot \pi \cdot r \cdot \left(\frac{\angle_{\text{Intersection}}}{2 \cdot \pi} \right)} \right)$$

Evaluate Formula ↻

Example with Units

$$49.9747\text{m}^2 = \left(\frac{1570\text{m}^3}{2 \cdot 3.1416 \cdot 10\text{m} \cdot \left(\frac{180^\circ}{2 \cdot 3.1416} \right)} \right)$$



6.3) Cross Sectional Perimeter of Toroid given Total Surface Area of Toroid Sector Formula

Formula

Evaluate Formula 

$$P_{\text{Cross Section}} = \frac{TSA_{\text{Sector}} - (2 \cdot A_{\text{Cross Section}})}{2 \cdot \pi \cdot r \cdot \left(\frac{\angle_{\text{Intersection}}}{2 \cdot \pi} \right)}$$

Example with Units

$$30.2394_{\text{m}} = \frac{1050_{\text{m}^2} - (2 \cdot 50_{\text{m}^2})}{2 \cdot 3.1416 \cdot 10_{\text{m}} \cdot \left(\frac{180^\circ}{2 \cdot 3.1416} \right)}$$

6.4) Total Surface Area of Toroid Sector Formula

Formula

Evaluate Formula 

$$TSA_{\text{Sector}} = \left((2 \cdot \pi \cdot r \cdot P_{\text{Cross Section}}) \cdot \left(\frac{\angle_{\text{Intersection}}}{2 \cdot \pi} \right) \right) + (2 \cdot A_{\text{Cross Section}})$$

Example with Units

$$1042.4778_{\text{m}^2} = \left((2 \cdot 3.1416 \cdot 10_{\text{m}} \cdot 30_{\text{m}}) \cdot \left(\frac{180^\circ}{2 \cdot 3.1416} \right) \right) + (2 \cdot 50_{\text{m}^2})$$

6.5) Total Surface Area of Toroid Sector given Volume Formula

Formula

Evaluate Formula 

$$TSA_{\text{Sector}} = \left((2 \cdot \pi \cdot P_{\text{Cross Section}}) \cdot \left(\left(\frac{V_{\text{Sector}}}{2 \cdot \pi \cdot A_{\text{Cross Section}}} \right) \right) \right) + (2 \cdot A_{\text{Cross Section}})$$

Example with Units

$$1042_{\text{m}^2} = \left((2 \cdot 3.1416 \cdot 30_{\text{m}}) \cdot \left(\left(\frac{1570_{\text{m}^3}}{2 \cdot 3.1416 \cdot 50_{\text{m}^2}} \right) \right) \right) + (2 \cdot 50_{\text{m}^2})$$

6.6) Volume of Toroid Sector Formula

Formula

Evaluate Formula 

$$V_{\text{Sector}} = (2 \cdot \pi \cdot r \cdot A_{\text{Cross Section}}) \cdot \left(\frac{\angle_{\text{Intersection}}}{2 \cdot \pi} \right)$$

Example with Units

$$1570.7963_{\text{m}^3} = (2 \cdot 3.1416 \cdot 10_{\text{m}} \cdot 50_{\text{m}^2}) \cdot \left(\frac{180^\circ}{2 \cdot 3.1416} \right)$$



6.7) Volume of Toroid Sector given Total Surface Area Formula

Formula

Evaluate Formula 

$$V_{\text{Sector}} = \left(2 \cdot \pi \cdot A_{\text{Cross Section}} \right) \cdot \left(\left(\frac{TSA_{\text{Sector}} - \left(2 \cdot A_{\text{Cross Section}} \right)}{2 \cdot \pi \cdot P_{\text{Cross Section}}} \right) \right)$$

Example with Units

$$1583.3333 \text{ m}^3 = \left(2 \cdot 3.1416 \cdot 50 \text{ m}^2 \right) \cdot \left(\left(\frac{1050 \text{ m}^2 - \left(2 \cdot 50 \text{ m}^2 \right)}{2 \cdot 3.1416 \cdot 30 \text{ m}} \right) \right)$$



Variables used in list of Important Formulas of Toroid and Toroid Sector above

- $\angle$ **Intersection** Angle of Intersection of Toroid Sector (Degree)
- **A** **Cross Section** Cross Sectional Area of Toroid (Square Meter)
- **P** **Cross Section** Cross Sectional Perimeter of Toroid (Meter)
- **r** **Radius of Toroid** (Meter)
- **TSA** **Total Surface Area of Toroid** (Square Meter)
- **TSA** **Sector** Total Surface Area of Toroid Sector (Square Meter)
- **V** **Volume of Toroid** (Cubic Meter)
- **V** **Sector** Volume of Toroid Sector (Cubic Meter)

Constants, Functions, Measurements used in list of Important Formulas of Toroid and Toroid Sector above

- **constant(s)**: pi, 3.14159265358979323846264338327950288
Archimedes' constant
- **Measurement: Length** in Meter (m)
Length Unit Conversion 
- **Measurement: Volume** in Cubic Meter (m³)
Volume Unit Conversion 
- **Measurement: Area** in Square Meter (m²)
Area Unit Conversion 
- **Measurement: Angle** in Degree (°)
Angle Unit Conversion 



- [Important Anticube Formulas](#) 
- [Important Antiprism Formulas](#) 
- [Important Barrel Formulas](#) 
- [Important Bent Cuboid Formulas](#) 
- [Important Bicone Formulas](#) 
- [Important Capsule Formulas](#) 
- [Important Circular Hyperboloid Formulas](#) 
- [Important Cuboctahedron Formulas](#) 
- [Important Cut Cylinder Formulas](#) 
- [Important Cut Cylindrical Shell Formulas](#) 
- [Important Cylinder Formulas](#) 
- [Important Cylindrical Shell Formulas](#) 
- [Important Diagonally Halved Cylinder Formulas](#) 
- [Important Disphenoid Formulas](#) 
- [Important Double Calotte Formulas](#) 
- [Important Double Point Formulas](#) 
- [Important Ellipsoid Formulas](#) 
- [Important Elliptic Cylinder Formulas](#) 
- [Important Elongated Dodecahedron Formulas](#) 
- [Important Flat End Cylinder Formulas](#) 
- [Important Frustum of Cone Formulas](#) 
- [Important Great Dodecahedron Formulas](#) 
- [Important Great Icosahedron Formulas](#) 
- [Important Great Stellated Dodecahedron Formulas](#) 
- [Important Half Cylinder Formulas](#) 
- [Important Half Tetrahedron Formulas](#) 
- [Important Hemisphere Formulas](#) 
- [Important Hollow Cuboid Formulas](#) 
- [Important Hollow Cylinder Formulas](#) 
- [Important Hollow Frustum Formulas](#) 
- [Important Hollow Hemisphere Formulas](#) 
- [Important Hollow Pyramid Formulas](#) 
- [Important Hollow Sphere Formulas](#) 
- [Important Ingot Formulas](#) 
- [Important Obelisk Formulas](#) 
- [Important Oblique Cylinder Formulas](#) 
- [Important Oblique Prism Formulas](#) 
- [Important Obtuse Edged Cuboid Formulas](#) 
- [Important Oloid Formulas](#) 
- [Important Paraboloid Formulas](#) 
- [Important Parallelepiped Formulas](#) 
- [Important Ramp Formulas](#) 
- [Important Regular Bipyramid Formulas](#) 
- [Important Rhombohedron Formulas](#) 
- [Important Right Wedge Formulas](#) 
- [Important Semi Ellipsoid Formulas](#) 
- [Important Sharp Bent Cylinder Formulas](#) 
- [Important Skewed Three Edged Prism Formulas](#) 



- **Important Small Stellated Dodecahedron Formulas** 
- **Important Solid of Revolution Formulas** 
- **Important Sphere Formulas** 
- **Important Spherical Cap Formulas** 
- **Important Spherical Corner Formulas** 
- **Important Spherical Ring Formulas** 
- **Important Spherical Sector Formulas** 
- **Important Spherical Segment Formulas** 
- **Important Spherical Wedge Formulas** 
- **Important Square Pillar Formulas** 
- **Important Star Pyramid Formulas** 
- **Important Stellated Octahedron Formulas** 
- **Important Toroid Formulas** 
- **Important Torus Formulas** 
- **Important Trirectangular Tetrahedron Formulas** 
- **Important Truncated Rhombohedron Formulas** 

Try our Unique Visual Calculators

-  **Percentage increase** 
-  **HCF calculator** 
-  **Mixed fraction** 

Please **SHARE** this PDF with someone who needs it!

This PDF can be downloaded in these languages

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

7/9/2024 | 1:41:01 PM UTC

