

Important Circle Formulas PDF



**Formulas
Examples
with Units**

**List of 25
Important Circle Formulas**

1) Area of Circle Formulas ↻

1.1) Area of Circle Formula ↻

Formula

$$A = \pi \cdot r^2$$

Example with Units

$$78.5398 \text{ m}^2 = 3.1416 \cdot 5 \text{ m}^2$$

Evaluate Formula ↻

1.2) Area of Circle given Chord Length Formula ↻

Formula

$$A = \pi \cdot \left(\frac{l_c}{2 \cdot \sin\left(\frac{\angle_{\text{Central}}}{2}\right)} \right)^2$$

Example with Units

$$50.6502 \text{ m}^2 = 3.1416 \cdot \left(\frac{8 \text{ m}}{2 \cdot \sin\left(\frac{170^\circ}{2}\right)} \right)^2$$

Evaluate Formula ↻

1.3) Area of Circle given Circumference Formula ↻

Formula

$$A = \frac{C^2}{4 \cdot \pi}$$

Example with Units

$$71.6197 \text{ m}^2 = \frac{30 \text{ m}^2}{4 \cdot 3.1416}$$

Evaluate Formula ↻

1.4) Area of Circle given Diameter Formula ↻

Formula

$$A = \frac{\pi}{4} \cdot D^2$$

Example with Units

$$78.5398 \text{ m}^2 = \frac{3.1416}{4} \cdot 10 \text{ m}^2$$

Evaluate Formula ↻

2) Chord Length of Circle Formulas ↻

2.1) Chord Length of Circle Formula ↻

Formula

$$l_c = 2 \cdot r \cdot \sin\left(\frac{\angle_{\text{Central}}}{2}\right)$$

Example with Units

$$9.9619 \text{ m} = 2 \cdot 5 \text{ m} \cdot \sin\left(\frac{170^\circ}{2}\right)$$

Evaluate Formula ↻



2.2) Chord Length of Circle given Diameter and Central Angle Formula

Formula

$$l_c = D \cdot \sin\left(\frac{\angle_{\text{Central}}}{2}\right)$$

Example with Units

$$9.9619\text{ m} = 10\text{ m} \cdot \sin\left(\frac{170^\circ}{2}\right)$$

Evaluate Formula 

2.3) Chord Length of Circle given Diameter and Inscribed Angle Formula

Formula

$$l_c = D \cdot \sin(\angle_{\text{Inscribed}})$$

Example with Units

$$9.9619\text{ m} = 10\text{ m} \cdot \sin(85^\circ)$$

Evaluate Formula 

2.4) Chord Length of Circle given Inscribed Angle Formula

Formula

$$l_c = 2 \cdot r \cdot \sin(\angle_{\text{Inscribed}})$$

Example with Units

$$9.9619\text{ m} = 2 \cdot 5\text{ m} \cdot \sin(85^\circ)$$

Evaluate Formula 

2.5) Chord Length of Circle given Perpendicular Length Formula

Formula

$$l_c = 2 \cdot \sqrt{r^2 - l_{\text{Perpendicular}}^2}$$

Example with Units

$$8\text{ m} = 2 \cdot \sqrt{5\text{ m}^2 - 3\text{ m}^2}$$

Evaluate Formula 

3) Circumference of Circle Formulas

3.1) Circumference of Circle Formula

Formula

$$C = 2 \cdot \pi \cdot r$$

Example with Units

$$31.4159\text{ m} = 2 \cdot 3.1416 \cdot 5\text{ m}$$

Evaluate Formula 

3.2) Circumference of Circle given Arc Length Formula

Formula

$$C = \frac{2 \cdot \pi \cdot l_{\text{Arc}}}{\angle_{\text{Central}}}$$

Example with Units

$$31.7647\text{ m} = \frac{2 \cdot 3.1416 \cdot 15\text{ m}}{170^\circ}$$

Evaluate Formula 

3.3) Circumference of Circle given Area Formula

Formula

$$C = \sqrt{4 \cdot \pi \cdot A}$$

Example with Units

$$31.7066\text{ m} = \sqrt{4 \cdot 3.1416 \cdot 80\text{ m}^2}$$

Evaluate Formula 

3.4) Circumference of Circle given Chord Length Formula

Formula

$$C = \frac{2 \cdot \pi \cdot l_c}{2 \cdot \sin\left(\frac{\angle_{\text{Central}}}{2}\right)}$$

Example with Units

$$25.2287\text{ m} = \frac{2 \cdot 3.1416 \cdot 8\text{ m}}{2 \cdot \sin\left(\frac{170^\circ}{2}\right)}$$

Evaluate Formula 



3.5) Circumference of Circle given Diameter Formula

Formula

$$C = \pi \cdot D$$

Example with Units

$$31.4159_{\text{m}} = 3.1416 \cdot 10_{\text{m}}$$

Evaluate Formula 

4) Diameter of Circle Formulas

4.1) Diameter of Circle Formula

Formula

$$D = 2 \cdot r$$

Example with Units

$$10_{\text{m}} = 2 \cdot 5_{\text{m}}$$

Evaluate Formula 

4.2) Diameter of Circle given Arc Length Formula

Formula

$$D = \frac{2 \cdot l_{\text{Arc}}}{\angle_{\text{Central}}}$$

Example with Units

$$10.111_{\text{m}} = \frac{2 \cdot 15_{\text{m}}}{170^{\circ}}$$

Evaluate Formula 

4.3) Diameter of Circle given Area Formula

Formula

$$D = 2 \cdot \sqrt{\frac{A}{\pi}}$$

Example with Units

$$10.0925_{\text{m}} = 2 \cdot \sqrt{\frac{80_{\text{m}^2}}{3.1416}}$$

Evaluate Formula 

4.4) Diameter of Circle given Circumference Formula

Formula

$$D = \frac{C}{\pi}$$

Example with Units

$$9.5493_{\text{m}} = \frac{30_{\text{m}}}{3.1416}$$

Evaluate Formula 

5) Inscribed Angle of Circle Formulas

5.1) Inscribed Angle of Circle Formula

Formula

$$\angle_{\text{Inscribed}} = \pi - \frac{\angle_{\text{Central}}}{2}$$

Example with Units

$$95^{\circ} = 3.1416 - \frac{170^{\circ}}{2}$$

Evaluate Formula 

5.2) Inscribed Angle of Circle given Arc Length Formula

Formula

$$\angle_{\text{Inscribed}} = \pi - \frac{l_{\text{Arc}}}{2 \cdot r}$$

Example with Units

$$94.0563^{\circ} = 3.1416 - \frac{15_{\text{m}}}{2 \cdot 5_{\text{m}}}$$

Evaluate Formula 



5.3) Inscribed Angle of Circle given other Inscribed Angle Formula

Formula

$$\angle_{\text{Inscribed}} = \pi - \angle_{\text{Inscribed}2}$$

Example with Units

$$85^\circ = 3.1416 - 95^\circ$$

Evaluate Formula 

6) Radius of Circle Formulas

6.1) Radius of Circle given Arc Length Formula

Formula

$$r = \frac{l_{\text{Arc}}}{\angle_{\text{Central}}}$$

Example with Units

$$5.0555\text{ m} = \frac{15\text{ m}}{170^\circ}$$

Evaluate Formula 

6.2) Radius of Circle given Area Formula

Formula

$$r = \sqrt{\frac{A}{\pi}}$$

Example with Units

$$5.0463\text{ m} = \sqrt{\frac{80\text{ m}^2}{3.1416}}$$

Evaluate Formula 

6.3) Radius of Circle given Circumference Formula

Formula

$$r = \frac{C}{2 \cdot \pi}$$

Example with Units

$$4.7746\text{ m} = \frac{30\text{ m}}{2 \cdot 3.1416}$$

Evaluate Formula 

6.4) Radius of Circle given Diameter Formula

Formula

$$r = \frac{D}{2}$$

Example with Units

$$5\text{ m} = \frac{10\text{ m}}{2}$$

Evaluate Formula 



Variables used in list of Circle Formulas above

- $\angle$ **Central** Central Angle of Circle (Degree)
- $\angle$ **Inscribed** Inscribed Angle of Circle (Degree)
- $\angle$ **Inscribed2** Second Inscribed Angle of Circle (Degree)
- **A** Area of Circle (Square Meter)
- **C** Circumference of Circle (Meter)
- **D** Diameter of Circle (Meter)
- **l_{Arc}** Arc Length of Circle (Meter)
- **l_{c}** Chord Length of Circle (Meter)
- **$l_{\text{Perpendicular}}$** Perpendicular Length to Chord of Circle (Meter)
- **r** Radius of Circle (Meter)

Constants, Functions, Measurements used in list of Circle Formulas above

- **constant(s):** π ,
3.14159265358979323846264338327950288
Archimedes' constant
- **Functions:** **sin**, $\sin(\text{Angle})$
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.
- **Functions:** **sqrt**, $\text{sqrt}(\text{Number})$
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.
- **Measurement:** **Length** in Meter (m)
Length Unit Conversion 
- **Measurement:** **Area** in Square Meter (m^2)
Area Unit Conversion 
- **Measurement:** **Angle** in Degree ($^\circ$)
Angle Unit Conversion 



Download other Important Circle PDFs

- [Important Circle Formulas](#) 
- [Important Circular Arc and Circular Quadrant Formulas](#) 
- [Important Circular Ring Formulas](#) 
- [Important Circular Sector Formulas](#) 

Try our Unique Visual Calculators

-  [Percentage decrease](#) 
-  [HCF of three numbers](#) 
-  [Multiply 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](#)

7/8/2024 | 12:55:54 PM UTC

