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Circular Arc and Circular Quadrant Formulas

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List of 17 Circular Arc and Circular Quadrant Formulas

Circular Arc and Circular Quadrant

Circular Arc

Angle of Circular Arc

1) Angle of Circular Arc given Arc Length

$$\text{fx } \angle_{\text{Arc}} = \frac{l_{\text{Arc}}}{r_{\text{Arc}}}$$

[Open Calculator !\[\]\(3211b5d1d968fc1665909b34f9f16010_img.jpg\)](#)

$$\text{ex } 45.83662^\circ = \frac{4\text{m}}{5\text{m}}$$

2) Angle of Circular Arc given Arc Length and Circumference

$$\text{fx } \angle_{\text{Arc}} = \frac{2 \cdot \pi \cdot l_{\text{Arc}}}{C_{\text{Circle}}}$$

[Open Calculator !\[\]\(9c2e8d1b5bd77cb5c9f83b7a9cff79fd_img.jpg\)](#)

$$\text{ex } 48^\circ = \frac{2 \cdot \pi \cdot 4\text{m}}{30\text{m}}$$

3) Angle of Circular Arc given Inscribed Angle

$$\text{fx } \angle_{\text{Arc}} = 2 \cdot \angle_{\text{Inscribed}}$$

[Open Calculator !\[\]\(235bfe13ebf007ce2eea9e689707fac7_img.jpg\)](#)

$$\text{ex } 40^\circ = 2 \cdot 20^\circ$$



4) Angle of Circular Arc given Sector Area

$$\text{fx } \angle_{\text{Arc}} = \frac{2 \cdot A_{\text{Sector}}}{r_{\text{Arc}}^2}$$

Open Calculator 

$$\text{ex } 41.25296^\circ = \frac{2 \cdot 9\text{m}^2}{(5\text{m})^2}$$

Arc Length of Circular Arc 5) Arc Length of Circular Arc

$$\text{fx } l_{\text{Arc}} = r_{\text{Arc}} \cdot \angle_{\text{Arc}}$$

Open Calculator 

$$\text{ex } 3.490659\text{m} = 5\text{m} \cdot 40^\circ$$

6) Arc Length of Circular Arc given Circumference

$$\text{fx } l_{\text{Arc}} = C_{\text{Circle}} \cdot \frac{\angle_{\text{Arc}}}{2 \cdot \pi}$$

Open Calculator 

$$\text{ex } 3.333333\text{m} = 30\text{m} \cdot \frac{40^\circ}{2 \cdot \pi}$$

7) Arc Length of Circular Arc given Sector Area

$$\text{fx } l_{\text{Arc}} = \frac{2 \cdot A_{\text{Sector}}}{r_{\text{Arc}}}$$

Open Calculator 

$$\text{ex } 3.6\text{m} = \frac{2 \cdot 9\text{m}^2}{5\text{m}}$$



Major and Minor Arc Lengths of Circular Arc

8) Major Arc Length given Minor Arc Length

$$\text{fx } l_{\text{Major}} = (2 \cdot \pi \cdot r_{\text{Arc}}) - l_{\text{Minor}}$$

[Open Calculator !\[\]\(23d9fc146e83b5c3013cfa32c784f8d5_img.jpg\)](#)

$$\text{ex } 25.41593\text{m} = (2 \cdot \pi \cdot 5\text{m}) - 6\text{m}$$

9) Major Arc Length given Tangent Angle

$$\text{fx } l_{\text{Major}} = (\pi + \angle_{\text{Tangent}}) \cdot r_{\text{Arc}}$$

[Open Calculator !\[\]\(aa53ad6fea213b8b2226d3077e30533a_img.jpg\)](#)

$$\text{ex } 27.92527\text{m} = (\pi + 140^\circ) \cdot 5\text{m}$$

10) Minor Arc Length given Major Arc Length

$$\text{fx } l_{\text{Minor}} = (2 \cdot \pi \cdot r_{\text{Arc}}) - l_{\text{Major}}$$

[Open Calculator !\[\]\(626ce8ac21792b9405bfddfea8e0c96a_img.jpg\)](#)

$$\text{ex } 6.415927\text{m} = (2 \cdot \pi \cdot 5\text{m}) - 25\text{m}$$

11) Minor Arc Length given Tangent Angle

$$\text{fx } l_{\text{Minor}} = (\pi - \angle_{\text{Tangent}}) \cdot r_{\text{Arc}}$$

[Open Calculator !\[\]\(c1168d6a8b365d11e842ece304635fa7_img.jpg\)](#)

$$\text{ex } 3.490659\text{m} = (\pi - 140^\circ) \cdot 5\text{m}$$



Tangent Angle of Circular Arc

12) Tangent Angle of Circular Arc

$$\text{fx } \angle_{\text{Tangent}} = \pi - \angle_{\text{Arc}}$$

[Open Calculator !\[\]\(74d4806277d7e73349d8e8c0897931e9_img.jpg\)](#)

$$\text{ex } 140^\circ = \pi - 40^\circ$$

13) Tangent Angle of Circular Arc given Major and Minor Arc Length

$$\text{fx } \angle_{\text{Tangent}} = \pi \cdot \frac{l_{\text{Major}} - l_{\text{Minor}}}{l_{\text{Major}} + l_{\text{Minor}}}$$

[Open Calculator !\[\]\(8bba887393ca45b761e5cb49e755e762_img.jpg\)](#)

$$\text{ex } 110.3226^\circ = \pi \cdot \frac{25\text{m} - 6\text{m}}{25\text{m} + 6\text{m}}$$

Circular Quadrant

14) Area of Circle given Area of Quadrant

$$\text{fx } A_{\text{Circle}} = 4 \cdot A$$

[Open Calculator !\[\]\(799877f5c2f906134441300079881630_img.jpg\)](#)

$$\text{ex } 80\text{m}^2 = 4 \cdot 20\text{m}^2$$

15) Area of Circular Quadrant

$$\text{fx } A = \frac{\pi \cdot r^2}{4}$$

[Open Calculator !\[\]\(4436e6b00b9d5e62c2a161129eb3e4d0_img.jpg\)](#)

$$\text{ex } 19.63495\text{m}^2 = \frac{\pi \cdot (5\text{m})^2}{4}$$



16) Area of Circular Quadrant given Area of Circle

fx
$$A = \frac{A_{\text{Circle}}}{4}$$

[Open Calculator](#) 

ex
$$20\text{m}^2 = \frac{80\text{m}^2}{4}$$

17) Perimeter of Circular Quadrant

fx
$$P = \left(\frac{\pi}{2} + 2 \right) \cdot r$$

[Open Calculator](#) 

ex
$$17.85398\text{m} = \left(\frac{\pi}{2} + 2 \right) \cdot 5\text{m}$$



Variables Used

- $\angle_{\text{Arc}}$ Angle of Circular Arc (Degree)
- $\angle_{\text{Inscribed}}$ Inscribed Angle of Circular Arc (Degree)
- $\angle_{\text{Tangent}}$ Tangent Angle of Circular Arc (Degree)
- A Area of Circular Quadrant (Square Meter)
- A_{Circle} Area of Circle of Circular Quadrant (Square Meter)
- A_{Sector} Sector Area of Circular Arc (Square Meter)
- C_{Circle} Circumference of Circle of Circular Arc (Meter)
- I_{Arc} Arc Length of Circular Arc (Meter)
- I_{Major} Major Arc Length of Circular Arc (Meter)
- I_{Minor} Minor Arc Length of Circular Arc (Meter)
- P Perimeter of Circular Quadrant (Meter)
- r Radius of Circular Quadrant (Meter)
- r_{Arc} Radius of Circular Arc (Meter)



Constants, Functions, Measurements used

- **Constant:** **pi**, 3.14159265358979323846264338327950288
Archimedes' constant
- **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

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

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