

Important Semicircle Formulas PDF



Formulas Examples with Units

List of 25 Important Semicircle Formulas

1) Arc Length of Semicircle Formulas

1.1) Arc Length of Semicircle Formula

Formula

$$l_{\text{Arc}} = \pi \cdot r$$

Example with Units

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

Evaluate Formula 

1.2) Arc Length of Semicircle given Area Formula

Formula

$$l_{\text{Arc}} = \sqrt{2 \cdot \pi \cdot A}$$

Example with Units

$$31.7066\text{ m} = \sqrt{2 \cdot 3.1416 \cdot 160\text{ m}^2}$$

Evaluate Formula 

1.3) Arc Length of Semicircle given Area of Circle Formula

Formula

$$l_{\text{Arc}} = \sqrt{A_{\text{Circle}} \cdot \pi}$$

Example with Units

$$31.7066\text{ m} = \sqrt{320\text{ m}^2 \cdot 3.1416}$$

Evaluate Formula 

1.4) Arc Length of Semicircle given Diameter Formula

Formula

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

Example with Units

$$31.4159\text{ m} = \frac{3.1416}{2} \cdot 20\text{ m}$$

Evaluate Formula 

1.5) Arc Length of Semicircle given Perimeter Formula

Formula

$$l_{\text{Arc}} = \frac{\pi}{\pi + 2} \cdot P$$

Example with Units

$$30.5508\text{ m} = \frac{3.1416}{3.1416 + 2} \cdot 50\text{ m}$$

Evaluate Formula 

2) Area of Semicircle Formulas

2.1) Area of Semicircle Formula

Formula

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

Example with Units

$$157.0796\text{ m}^2 = \frac{3.1416}{2} \cdot 10\text{ m}^2$$

Evaluate Formula 



2.2) Area of Semicircle given Arc Length Formula

Formula

$$A = \frac{l_{\text{Arc}}^2}{2 \cdot \pi}$$

Example with Units

$$143.2394 \text{ m}^2 = \frac{30 \text{ m}^2}{2 \cdot 3.1416}$$

Evaluate Formula 

2.3) Area of Semicircle given Area of Circle Formula

Formula

$$A = \frac{A_{\text{Circle}}}{2}$$

Example with Units

$$160 \text{ m}^2 = \frac{320 \text{ m}^2}{2}$$

Evaluate Formula 

2.4) Area of Semicircle given Diameter of Semicircle Formula

Formula

$$A = \frac{\pi}{8} \cdot D^2$$

Example with Units

$$157.0796 \text{ m}^2 = \frac{3.1416}{8} \cdot 20 \text{ m}^2$$

Evaluate Formula 

2.5) Area of Semicircle given Perimeter Formula

Formula

$$A = \frac{\pi}{2} \cdot \left(\frac{P}{\pi + 2} \right)^2$$

Example with Units

$$148.5472 \text{ m}^2 = \frac{3.1416}{2} \cdot \left(\frac{50 \text{ m}}{3.1416 + 2} \right)^2$$

Evaluate Formula 

3) Diameter of Semicircle Formulas

3.1) Diameter of Semicircle Formula

Formula

$$D = 2 \cdot r$$

Example with Units

$$20 \text{ m} = 2 \cdot 10 \text{ m}$$

Evaluate Formula 

3.2) Diameter of Semicircle given Arc Length Formula

Formula

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

Example with Units

$$19.0986 \text{ m} = \frac{2}{3.1416} \cdot 30 \text{ m}$$

Evaluate Formula 

3.3) Diameter of Semicircle given Area Formula

Formula

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

Example with Units

$$20.1851 \text{ m} = 2 \cdot \sqrt{2 \cdot \frac{160 \text{ m}^2}{3.1416}}$$

Evaluate Formula 



3.4) Diameter of Semicircle given Area of Circle Formula

Formula

$$D = 2 \cdot \sqrt{\frac{A_{\text{Circle}}}{\pi}}$$

Example with Units

$$20.1851 \text{ m} = 2 \cdot \sqrt{\frac{320 \text{ m}^2}{3.1416}}$$

Evaluate Formula 

3.5) Diameter of Semicircle given Perimeter Formula

Formula

$$D = \frac{2}{\pi + 2} \cdot P$$

Example with Units

$$19.4492 \text{ m} = \frac{2}{3.1416 + 2} \cdot 50 \text{ m}$$

Evaluate Formula 

4) Perimeter of Semicircle Formulas

4.1) Perimeter of Semicircle Formula

Formula

$$P = (\pi + 2) \cdot r$$

Example with Units

$$51.4159 \text{ m} = (3.1416 + 2) \cdot 10 \text{ m}$$

Evaluate Formula 

4.2) Perimeter of Semicircle given Arc Length Formula

Formula

$$P = \frac{\pi + 2}{\pi} \cdot l_{\text{Arc}}$$

Example with Units

$$49.0986 \text{ m} = \frac{3.1416 + 2}{3.1416} \cdot 30 \text{ m}$$

Evaluate Formula 

4.3) Perimeter of Semicircle given Area Formula

Formula

$$P = \pi \cdot \sqrt{\frac{2}{\pi} \cdot A} + 2 \cdot \sqrt{\frac{2}{\pi} \cdot A}$$

Example with Units

$$51.8917 \text{ m} = 3.1416 \cdot \sqrt{\frac{2}{3.1416} \cdot 160 \text{ m}^2} + 2 \cdot \sqrt{\frac{2}{3.1416} \cdot 160 \text{ m}^2}$$

Evaluate Formula 

4.4) Perimeter of Semicircle given Area of Circle Formula

Formula

$$P = (\pi + 2) \cdot \sqrt{\frac{A_{\text{Circle}}}{\pi}}$$

Example with Units

$$51.8917 \text{ m} = (3.1416 + 2) \cdot \sqrt{\frac{320 \text{ m}^2}{3.1416}}$$

Evaluate Formula 

4.5) Perimeter of Semicircle given Diameter Formula

Formula

$$P = \left(\frac{\pi}{2} + 1 \right) \cdot D$$

Example with Units

$$51.4159 \text{ m} = \left(\frac{3.1416}{2} + 1 \right) \cdot 20 \text{ m}$$

Evaluate Formula 



5) Radius of Semicircle Formulas

5.1) Radius of Semicircle given Arc Length Formula

Formula

$$r = \frac{l_{\text{Arc}}}{\pi}$$

Example with Units

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

Evaluate Formula 

5.2) Radius of Semicircle given Area Formula

Formula

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

Example with Units

$$10.0925\text{ m} = \sqrt{\frac{2}{3.1416} \cdot 160\text{ m}^2}$$

Evaluate Formula 

5.3) Radius of Semicircle given Area of Circle Formula

Formula

$$r = \sqrt{\frac{A_{\text{Circle}}}{\pi}}$$

Example with Units

$$10.0925\text{ m} = \sqrt{\frac{320\text{ m}^2}{3.1416}}$$

Evaluate Formula 

5.4) Radius of Semicircle given Diameter Formula

Formula

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

Example with Units

$$10\text{ m} = \frac{20\text{ m}}{2}$$

Evaluate Formula 

5.5) Radius of Semicircle given Perimeter Formula

Formula

$$r = \frac{P}{\pi + 2}$$

Example with Units

$$9.7246\text{ m} = \frac{50\text{ m}}{3.1416 + 2}$$

Evaluate Formula 



Variables used in list of Semicircle Formulas above

- **A** Area of Semicircle (Square Meter)
- **A_{Circle}** Area of Circle of Semicircle (Square Meter)
- **D** Diameter of Semicircle (Meter)
- **l_{Arc}** Arc Length of Semicircle (Meter)
- **P** Perimeter of Semicircle (Meter)
- **r** Radius of Semicircle (Meter)

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

- **constant(s):** pi,
3.14159265358979323846264338327950288
Archimedes' constant
- **Functions:** 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.
- **Measurement: Length** in Meter (m)
Length Unit Conversion 
- **Measurement: Area** in Square Meter (m²)
Area Unit Conversion 



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