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Important Formulas of Hemisphere

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List of 18 Important Formulas of Hemisphere

Important Formulas of Hemisphere

Circumference of Hemisphere

1) Circumference of Hemisphere

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

[Open Calculator !\[\]\(de95854c7ee024cfadc48187bbb781b2_img.jpg\)](#)

$$ex \quad 31.41593m = 2 \cdot \pi \cdot 5m$$

2) Circumference of Hemisphere given Curved Surface Area

$$fx \quad C = \sqrt{2 \cdot \pi \cdot CSA}$$

[Open Calculator !\[\]\(6a9b39b98eb945faa14c645ec99e4eaa_img.jpg\)](#)

$$ex \quad 31.70662m = \sqrt{2 \cdot \pi \cdot 160m^2}$$

3) Circumference of Hemisphere given Volume

$$fx \quad C = 2 \cdot \pi \cdot \left(\frac{3 \cdot V}{2 \cdot \pi} \right)^{\frac{1}{3}}$$

[Open Calculator !\[\]\(f1c5da15572e3e09d343161be98f508d_img.jpg\)](#)

$$ex \quad 31.34379m = 2 \cdot \pi \cdot \left(\frac{3 \cdot 260m^3}{2 \cdot \pi} \right)^{\frac{1}{3}}$$



Radius and Diameter of Hemisphere

4) Diameter of Hemisphere given Circumference

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

[Open Calculator !\[\]\(a03a7eb2f4046e1d3c76772003e549ea_img.jpg\)](#)

$$\text{ex } 9.549297\text{m} = \frac{30\text{m}}{\pi}$$

5) Diameter of Hemisphere given Curved Surface Area

$$\text{fx } D = 2 \cdot \sqrt{\frac{\text{CSA}}{2 \cdot \pi}}$$

[Open Calculator !\[\]\(5361750c22c4e047a52f4eac1ec2d4cc_img.jpg\)](#)

$$\text{ex } 10.09253\text{m} = 2 \cdot \sqrt{\frac{160\text{m}^2}{2 \cdot \pi}}$$


6) Diameter of Hemisphere given Volume

$$\text{fx } D = 2 \cdot \left(\frac{3 \cdot V}{2 \cdot \pi} \right)^{\frac{1}{3}}$$

[Open Calculator !\[\]\(b792654f2cef9719eabeb6c5be00811e_img.jpg\)](#)

$$\text{ex } 9.977037\text{m} = 2 \cdot \left(\frac{3 \cdot 260\text{m}^3}{2 \cdot \pi} \right)^{\frac{1}{3}}$$




7) Radius of Hemisphere given Circumference 

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

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

$$ex \quad 4.774648m = \frac{30m}{2 \cdot \pi}$$

8) Radius of Hemisphere given Total Surface Area 

$$fx \quad r = \sqrt{\frac{TSA}{3 \cdot \pi}}$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2_img.jpg\)](#)

$$ex \quad 4.993423m = \sqrt{\frac{235m^2}{3 \cdot \pi}}$$

9) Radius of Hemisphere given Volume 

$$fx \quad r = \left(\frac{3 \cdot V}{2 \cdot \pi} \right)^{\frac{1}{3}}$$

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7_img.jpg\)](#)

$$ex \quad 4.988518m = \left(\frac{3 \cdot 260m^3}{2 \cdot \pi} \right)^{\frac{1}{3}}$$



Surface Area of Hemisphere

10) Curved Surface Area of Hemisphere

$$\text{fx } \text{CSA} = 2 \cdot \pi \cdot r^2$$

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

$$\text{ex } 157.0796\text{m}^2 = 2 \cdot \pi \cdot (5\text{m})^2$$

11) Curved Surface Area of Hemisphere given Total Surface Area

$$\text{fx } \text{CSA} = \frac{2}{3} \cdot \text{TSA}$$

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

$$\text{ex } 156.6667\text{m}^2 = \frac{2}{3} \cdot 235\text{m}^2$$

12) Curved Surface Area of Hemisphere given Volume

$$\text{fx } \text{CSA} = 2 \cdot \pi \cdot \left(\frac{3 \cdot V}{2 \cdot \pi} \right)^{\frac{2}{3}}$$

[Open Calculator !\[\]\(0fb13ad0bfa3d86868cdd3883e5665b3_img.jpg\)](#)

$$\text{ex } 156.3591\text{m}^2 = 2 \cdot \pi \cdot \left(\frac{3 \cdot 260\text{m}^3}{2 \cdot \pi} \right)^{\frac{2}{3}}$$


13) Total Surface Area of Hemisphere

$$\text{fx } \text{TSA} = 3 \cdot \pi \cdot r^2$$

[Open Calculator !\[\]\(e50091943b385fe16d3277389202856f_img.jpg\)](#)

$$\text{ex } 235.6194\text{m}^2 = 3 \cdot \pi \cdot (5\text{m})^2$$




14) Total Surface Area of Hemisphere given Curved Surface Area 

$$\text{fx } \text{TSA} = \frac{3}{2} \cdot \text{CSA}$$

[Open Calculator !\[\]\(d3fb9f94af8b26d1c844efa9a98805b0_img.jpg\)](#)


$$\text{ex } 240\text{m}^2 = \frac{3}{2} \cdot 160\text{m}^2$$

15) Total Surface Area of Hemisphere given Volume 

$$\text{fx } \text{TSA} = 3 \cdot \pi \cdot \left(\frac{3 \cdot V}{2 \cdot \pi} \right)^{\frac{2}{3}}$$

[Open Calculator !\[\]\(e1d6102fe77919492c04879c8450f1f5_img.jpg\)](#)

$$\text{ex } 234.5386\text{m}^2 = 3 \cdot \pi \cdot \left(\frac{3 \cdot 260\text{m}^3}{2 \cdot \pi} \right)^{\frac{2}{3}}$$


Volume of Hemisphere 16) Volume of Hemisphere 

$$\text{fx } V = \frac{2}{3} \cdot \pi \cdot r^3$$

[Open Calculator !\[\]\(104fbf564e2e5a8fbd84f31656d114c7_img.jpg\)](#)

$$\text{ex } 261.7994\text{m}^3 = \frac{2}{3} \cdot \pi \cdot (5\text{m})^3$$




17) Volume of Hemisphere given Circumference 

$$\text{fx } V = \frac{2 \cdot \pi}{3} \cdot \left(\frac{C}{2 \cdot \pi} \right)^3$$

[Open Calculator !\[\]\(9dfdaff1d86ba3c1f8353b4d1b61b8c5_img.jpg\)](#)

$$\text{ex } 227.9727\text{m}^3 = \frac{2 \cdot \pi}{3} \cdot \left(\frac{30\text{m}}{2 \cdot \pi} \right)^3$$

18) Volume of Hemisphere given Curved Surface Area 

$$\text{fx } V = \frac{2}{3} \cdot \pi \cdot \left(\frac{\text{CSA}}{2 \cdot \pi} \right)^{\frac{3}{2}}$$

[Open Calculator !\[\]\(2b376d1a92330ab09dad2665d2f89bf5_img.jpg\)](#)

$$\text{ex } 269.1341\text{m}^3 = \frac{2}{3} \cdot \pi \cdot \left(\frac{160\text{m}^2}{2 \cdot \pi} \right)^{\frac{3}{2}}$$






Variables Used

- **C** Circumference of Hemisphere (*Meter*)
- **CSA** Curved Surface Area of Hemisphere (*Square Meter*)
- **D** Diameter of Hemisphere (*Meter*)
- **r** Radius of Hemisphere (*Meter*)
- **TSA** Total Surface Area of Hemisphere (*Square Meter*)
- **V** Volume of Hemisphere (*Cubic Meter*)



Constants, Functions, Measurements used














- **Constant:** **pi**, 3.14159265358979323846264338327950288
Archimedes' constant
- **Function:** **sqrt**, sqrt(Number)
Square root function
- **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 



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