Important Formulas of Hemisphere PDF

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Formulas
Examples
with Units

List of 18
Important Formulas of Hemisphere

1) Circumference of Hemisphere Formulas 📲

1.1) Circumference of Hemisphere Formula 📲

Formula

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

Example with Units

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

1.2) Circumference of Hemisphere given Curved Surface Area Formula 📲

Formula

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

Example with Units

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

1.3) Circumference of Hemisphere given Volume Formula 📲

Formula

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

Example with Units

$$31.3438\,\text{m} = 2 \cdot 3.1416 \cdot \left(\frac{3 \cdot 260\,\text{m}^3}{2 \cdot 3.1416} \right)^{\frac{1}{3}}$$

2) Radius and Diameter of Hemisphere Formulas 📲

2.1) Diameter of Hemisphere given Circumference Formula 📲

Formula

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

Example with Units

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

2.2) Diameter of Hemisphere given Curved Surface Area Formula 📲

Formula

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

Example with Units

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

2.3) Diameter of Hemisphere given Volume Formula

Formula

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

Example with Units

$$9.977\,\text{m} = 2 \cdot \left(\frac{3 \cdot 260\,\text{m}^3}{2 \cdot 3.1416} \right)^{\frac{1}{3}}$$

2.4) Radius of Hemisphere given Circumference Formula

Formula

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

Example with Units

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

2.5) Radius of Hemisphere given Total Surface Area Formula

Formula

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

Example with Units

$$4.9934\,\text{m} = \sqrt{\frac{235\,\text{m}^2}{3 \cdot 3.1416}}$$

2.6) Radius of Hemisphere given Volume Formula

Formula

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

Example with Units

$$4.9885\,\text{m} = \left(\frac{3 \cdot 260\,\text{m}^3}{2 \cdot 3.1416} \right)^{\frac{1}{3}}$$

3) Surface Area of Hemisphere Formulas

3.1) Curved Surface Area of Hemisphere Formula

Formula

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

Example with Units

$$157.0796\,\text{m}^2 = 2 \cdot 3.1416 \cdot 5\,\text{m}^2$$

3.2) Curved Surface Area of Hemisphere given Total Surface Area Formula

Formula

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

Example with Units

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

3.3) Curved Surface Area of Hemisphere given Volume Formula

Formula

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

Example with Units

$$156.3591\,\text{m}^2 = 2 \cdot 3.1416 \cdot \left(\frac{3 \cdot 260\,\text{m}^3}{2 \cdot 3.1416} \right)^{\frac{2}{3}}$$

3.4) Total Surface Area of Hemisphere Formula ↪

Formula

$$TSA = 3 \cdot \pi \cdot r^2$$

Example with Units

$$235.6194\,\text{m}^2 = 3 \cdot 3.1416 \cdot 5\,\text{m}^2$$

3.5) Total Surface Area of Hemisphere given Curved Surface Area Formula ↪

Formula

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

Example with Units

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

3.6) Total Surface Area of Hemisphere given Volume Formula ↪

Formula

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

Example with Units

$$234.5386\,\text{m}^2 = 3 \cdot 3.1416 \cdot \left(\frac{3 \cdot 260\,\text{m}^3}{2 \cdot 3.1416} \right)^{\frac{2}{3}}$$

4) Volume of Hemisphere Formulas ↪

4.1) Volume of Hemisphere Formula ↪

Formula

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

Example with Units

$$261.7994\,\text{m}^3 = \frac{2}{3} \cdot 3.1416 \cdot 5\,\text{m}^3$$

4.2) Volume of Hemisphere given Circumference Formula ↪

Formula

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

Example with Units

$$227.9727\,\text{m}^3 = \frac{2 \cdot 3.1416}{3} \cdot \left(\frac{30\,\text{m}}{2 \cdot 3.1416} \right)^3$$

4.3) Volume of Hemisphere given Curved Surface Area Formula ↪

Formula

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

Example with Units

$$269.1341\,\text{m}^3 = \frac{2}{3} \cdot 3.1416 \cdot \left(\frac{160\,\text{m}^2}{2 \cdot 3.1416} \right)^{\frac{3}{2}}$$

Variables used in list of Important Formulas of Hemisphere above

- **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 in list of Important Formulas of Hemisphere 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: **Volume** in Cubic Meter (m³) *Volume Unit Conversion* 📤
- Measurement: **Area** in Square Meter (m²) *Area Unit Conversion* 📤

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- **Important Rhombohedron Formulas** 🡕
- **Important Right Wedge Formulas** 🡕
- **Important Semi Ellipsoid Formulas** 🡕
- **Important Sharp Bent Cylinder Formulas** 🡕
- **Important Skewed Three Edged Prism Formulas** 🡕

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