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

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

### 2) Circumference of Hemisphere given Curved Surface Area 🗗

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

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

### 3) Circumference of Hemisphere given Volume 🗗

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

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

# Radius and Diameter of Hemisphere 🔗

## 4) Diameter of Hemisphere given Circumference 🔗

**Open Calculator** 🔗

**fx** $D = \dfrac{C}{\pi}$

**ex** $9.549297\text{m} = \dfrac{30\text{m}}{\pi}$

## 5) Diameter of Hemisphere given Curved Surface Area 🔗

**Open Calculator** 🔗

**fx** $D = 2 \cdot \sqrt{\dfrac{CSA}{2 \cdot \pi}}$

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

## 6) Diameter of Hemisphere given Volume 🔗

**Open Calculator** 🔗

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

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

## 7) Radius of Hemisphere given Circumference 📈

**Open Calculator** ⚡

**fx** $r = \dfrac{C}{2 \cdot \pi}$

**ex** $4.774648m = \dfrac{30m}{2 \cdot \pi}$

## 8) Radius of Hemisphere given Total Surface Area 📈

**Open Calculator** ⚡

**fx** $r = \sqrt{\dfrac{TSA}{3 \cdot \pi}}$

**ex** $4.993423m = \sqrt{\dfrac{235m^2}{3 \cdot \pi}}$

## 9) Radius of Hemisphere given Volume 📈

**Open Calculator** ⚡

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

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

# Surface Area of Hemisphere 🔗

## 10) Curved Surface Area of Hemisphere 🔗

Open Calculator 🔗

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

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

## 11) Curved Surface Area of Hemisphere given Total Surface Area 🔗

Open Calculator 🔗

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

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

## 12) Curved Surface Area of Hemisphere given Volume 🔗

Open Calculator 🔗

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

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

## 13) Total Surface Area of Hemisphere 🔗

Open Calculator 🔗

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

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

## 14) Total Surface Area of Hemisphere given Curved Surface Area ⛶

*fx* $\boxed{\text{TSA} = \dfrac{3}{2} \cdot \text{CSA}}$

*ex* $\boxed{240\text{m}^2 = \dfrac{3}{2} \cdot 160\text{m}^2}$

## 15) Total Surface Area of Hemisphere given Volume ⛶

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

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

# Volume of Hemisphere ⛶

## 16) Volume of Hemisphere ⛶

*fx* $\boxed{\text{V} = \dfrac{2}{3} \cdot \pi \cdot \text{r}^3}$

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

## 17) Volume of Hemisphere given Circumference ⬀

**Open Calculator** ⬀

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

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

## 18) Volume of Hemisphere given Curved Surface Area ⬀

**Open Calculator** ⬀

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

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

# 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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