



calculatoratoz.com



unitsconverters.com

Geometrical Properties of Parabolic Channel Section Formulas

Calculators!

Examples!

Conversions!

Bookmark calculatoratoz.com, unitsconverters.com

Widest Coverage of Calculators and Growing - **30,000+ Calculators!**
Calculate With a Different Unit for Each Variable - **In built Unit Conversion!**
Widest Collection of Measurements and Units - **250+ Measurements!**

Feel free to SHARE this document with your friends!

[Please leave your feedback here...](#)



List of 13 Geometrical Properties of Parabolic Channel Section Formulas

Geometrical Properties of Parabolic Channel Section

1) Depth of Flow given Hydraulic Depth for Parabola

$$fx \quad d_f = D_{Para} \cdot 1.5$$

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b_img.jpg\)](#)

$$ex \quad 3.3m = 2.2m \cdot 1.5$$

2) Depth of Flow given Section Factor for Parabola

$$fx \quad d_f = \left(\frac{Z_{Para}}{0.544331054 \cdot T} \right)^{\frac{2}{3}}$$

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d_img.jpg\)](#)

$$ex \quad 2.433351m = \left(\frac{4.339m^2 \cdot 2.5}{0.544331054 \cdot 2.1m} \right)^{\frac{2}{3}}$$

3) Depth of Flow given Top Width for Parabola

$$fx \quad d_f = 1.5 \cdot \frac{A_{Para}}{T}$$

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d_img.jpg\)](#)

$$ex \quad 3.3m = 1.5 \cdot \frac{4.62m^2}{2.1m}$$



4) Depth of Flow given Wetted Area for Parabola 

$$fx \quad d_f = \frac{A_{\text{Para}}}{\left(\frac{2}{3}\right) \cdot T}$$

Open Calculator 


$$ex \quad 3.3m = \frac{4.62m^2}{\left(\frac{2}{3}\right) \cdot 2.1m}$$

5) Hydraulic Depth for Parabola 

$$fx \quad D_{\text{Para}} = \left(\frac{2}{3}\right) \cdot d_f$$

Open Calculator 

$$ex \quad 2.2m = \left(\frac{2}{3}\right) \cdot 3.3m$$

6) Hydraulic Radius given Width 

$$fx \quad R_{H(\text{Para})} = \frac{2 \cdot (T)^2 \cdot d_f}{3 \cdot (T)^2 + 8 \cdot (d_f)^2}$$

Open Calculator 

$$ex \quad 0.290045m = \frac{2 \cdot (2.1m)^2 \cdot 3.3m}{3 \cdot (2.1m)^2 + 8 \cdot (3.3m)^2}$$



7) Top Width for Parabola

$$\text{fx } T = 1.5 \cdot \frac{A_{\text{Para}}}{d_f}$$

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

$$\text{ex } 2.1\text{m} = 1.5 \cdot \frac{4.62\text{m}^2}{3.3\text{m}}$$

8) Top Width given Hydraulic Radius

$$\text{fx } T = \sqrt{\frac{8 \cdot (d_f)^2 \cdot R_{H(\text{Para})}}{2 \cdot d_f - 3 \cdot R_{H(\text{Para})}}}$$

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

$$\text{ex } 2.100001\text{m} = \sqrt{\frac{8 \cdot (3.3\text{m})^2 \cdot 0.290045\text{m}}{2 \cdot 3.3\text{m} - 3 \cdot 0.290045\text{m}}}$$


9) Top Width given Wetted Area

$$\text{fx } T = \frac{A_{\text{Para}}}{\left(\frac{2}{3}\right) \cdot d_f}$$

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

$$\text{ex } 2.1\text{m} = \frac{4.62\text{m}^2}{\left(\frac{2}{3}\right) \cdot 3.3\text{m}}$$



10) Top Widths given Section Factor 

$$fx \quad T = \frac{Z_{Para}}{0.544331054 \cdot (d_f^{1.5})}$$

Open Calculator 


$$ex \quad 1.329706m = \frac{4.339m^2 \cdot 2.5}{0.544331054 \cdot ((3.3m)^{1.5})}$$

11) Wetted Area 

$$fx \quad A_{Para} = \left(\frac{2}{3}\right) \cdot T \cdot d_f$$

Open Calculator 

$$ex \quad 4.62m^2 = \left(\frac{2}{3}\right) \cdot 2.1m \cdot 3.3m$$

12) Wetted Area given Top Width 

$$fx \quad A_{Para} = T \cdot \frac{d_f}{1.5}$$

Open Calculator 

$$ex \quad 4.62m^2 = 2.1m \cdot \frac{3.3m}{1.5}$$



13) Wetted Perimeter for Parabola

[Open Calculator !\[\]\(eafc244b53721dd1ec133f0772f70fc7_img.jpg\)](#)

$$fx \quad P_{\text{Para}} = T + \left(\frac{8}{3} \right) \cdot d_f \cdot \frac{d_f}{T}$$

$$ex \quad 15.92857\text{m} = 2.1\text{m} + \left(\frac{8}{3} \right) \cdot 3.3\text{m} \cdot \frac{3.3\text{m}}{2.1\text{m}}$$






Variables Used

- **A_{Para}** Wetted Surface Area of Parabola (Square Meter)
- **d_f** Depth of Flow (Meter)
- **D_{Para}** Hydraulic Depth of Parabolic Channel (Meter)
- **P_{Para}** Wetted Perimeter of Parabola (Meter)
- **$R_{\text{H(Para)}}$** Hydraulic Radius of Parabola (Meter)
- **T** Top Width (Meter)
- **Z_{Para}** Section Factor of Parabola (Meter^{2.5})








Constants, Functions, Measurements used

- **Function:** **sqrt**, sqrt(Number)
Square root function
- **Measurement:** **Length** in Meter (m)
Length Unit Conversion 
- **Measurement:** **Area** in Square Meter (m²)
Area Unit Conversion 
- **Measurement:** **Section Factor** in Meter^{2.5} (m^{2.5})
Section Factor Unit Conversion 



Check other formula lists

- [Geometrical Properties of Circular Channel Section Formulas](#) 
- [Geometrical Properties of Parabolic Channel Section Formulas](#) 
- [Geometrical Properties of Rectangular Channel Section Formulas](#) 
- [Geometrical Properties of Trapezoidal Channel Section Formulas](#) 
- [Geometrical Properties of Triangular Channel Section Formulas](#) 

Feel free to SHARE this document with your friends!

PDF Available in

[English](#) [Spanish](#) [French](#) [German](#) [Russian](#) [Italian](#) [Portuguese](#) [Polish](#) [Dutch](#)

9/25/2023 | 7:43:46 AM UTC

[Please leave your feedback here...](#)

