



calculatoratoz.com



unitsconverters.com

Level Measurement 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 18 Level Measurement Formulas

Level Measurement

1) Buoyancy

$$fx \quad F_b = D_{im} \cdot A \cdot \gamma$$

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

$$ex \quad 10.8N = 0.27m \cdot 0.05m^2 \cdot 800N/m^3$$

2) Buoyancy Force on Cylindrical Displacer

$$fx \quad F_b = \frac{\gamma \cdot \pi \cdot D^2 \cdot L}{4}$$

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

$$ex \quad 10.77566N = \frac{800N/m^3 \cdot \pi \cdot (0.07m)^2 \cdot 3.5m}{4}$$

3) Capacitance with No Liquid

$$fx \quad C_a = \frac{C \cdot R}{(D_L \cdot \mu) + R}$$

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

$$ex \quad 4.590909F = \frac{10.1F \cdot 1.05m}{(0.021m \cdot 60) + 1.05m}$$



4) Cross-Sectional Area of Object

$$fx \quad A = \frac{F_b}{D_{im} \cdot \gamma}$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)

$$ex \quad 0.049769m^2 = \frac{10.75N}{0.27m \cdot 800N/m^3}$$

5) Depth of Fluid

$$fx \quad d = \frac{\Delta P}{\gamma}$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

$$ex \quad 11.25m = \frac{9000Pa}{800N/m^3}$$


6) Float diameter

$$fx \quad D = \sqrt{\frac{4 \cdot F_b}{\gamma \cdot \pi \cdot L}}$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

$$ex \quad 0.069917m = \sqrt{\frac{4 \cdot 10.75N}{800N/m^3 \cdot \pi \cdot 3.5m}}$$




7) Height of plates 

$$fx \quad R = D_L \cdot \frac{C_a \cdot \mu}{C - C_a}$$

Open Calculator 


$$ex \quad 1.053818m = 0.021m \cdot \frac{4.6F \cdot 60}{10.1F - 4.6F}$$

8) Immersed Depth 

$$fx \quad D_{im} = \frac{F_b}{A \cdot \gamma}$$

Open Calculator 


$$ex \quad 0.26875m = \frac{10.75N}{0.05m^2 \cdot 800N/m^3}$$

9) Length of displacer submerged in liquid 

$$fx \quad L = \frac{4 \cdot F_b}{\gamma \cdot \pi \cdot D^2}$$

Open Calculator 

$$ex \quad 3.491665m = \frac{4 \cdot 10.75N}{800N/m^3 \cdot \pi \cdot (0.07m)^2}$$

10) Liquid Level 

$$fx \quad D_L = \frac{(C - C_a) \cdot R}{C_a \cdot \mu}$$

Open Calculator 

$$ex \quad 0.020924m = \frac{(10.1F - 4.6F) \cdot 1.05m}{4.6F \cdot 60}$$



11) Magnetic Permeability of Liquid

$$fx \quad \mu = \frac{R \cdot (C - C_a)}{D_L \cdot C_a}$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a_img.jpg\)](#)

$$ex \quad 59.78261 = \frac{1.05m \cdot (10.1F - 4.6F)}{0.021m \cdot 4.6F}$$

12) Non-Conductive Liquid Capacitance

$$fx \quad C = (\mu \cdot D_L \cdot C_a) + (R \cdot C_a)$$

[Open Calculator !\[\]\(0b5e7e25e8775f7e7e80906ada4f0021_img.jpg\)](#)

$$ex \quad 10.626F = (60 \cdot 0.021m \cdot 4.6F) + (1.05m \cdot 4.6F)$$

13) Volume of Material in Container

$$fx \quad V_m = A \cdot d$$

[Open Calculator !\[\]\(bd3b31712ad9bab5a241210fa6925cdd_img.jpg\)](#)

$$ex \quad 0.56m^3 = 0.05m^2 \cdot 11.2m$$

14) Weight of Air

$$fx \quad W_a = (D_{im} \cdot \gamma \cdot A) + W_b$$

[Open Calculator !\[\]\(7bc43b319a082987e20f7bf78f4bab80_img.jpg\)](#)

$$ex \quad 61.8kg = (0.27m \cdot 800N/m^3 \cdot 0.05m^2) + 51kg$$

15) Weight of Body in Liquid

$$fx \quad W_b = W_a - (D_{im} \cdot \gamma \cdot A)$$

[Open Calculator !\[\]\(4a7b4ce770af8456e11a71f9565c8c2b_img.jpg\)](#)

$$ex \quad 51.2kg = 62kg - (0.27m \cdot 800N/m^3 \cdot 0.05m^2)$$



16) Weight of Displacer

$$fx \quad W_b = W_f + F$$

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

$$ex \quad 51kg = 18.4kg + 32.6N$$

17) Weight of Material in Container

$$fx \quad W_{ml} = V_m \cdot \gamma$$

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

$$ex \quad 448kg = 0.56m^3 \cdot 800N/m^3$$

18) Weight on Force Sensor

$$fx \quad W_f = W_b - F$$

[Open Calculator !\[\]\(ab4e2b3fc7e7887b7a72f548aa6f5e60_img.jpg\)](#)

$$ex \quad 18.4kg = 51kg - 32.6N$$











Variables Used

- **A** Cross Section Area Level (Square Meter)
- **C** Capacitance (Farad)
- **C_a** No Fluid Capacitance (Farad)
- **d** Depth (Meter)
- **D** Pipe Diameter Level (Meter)
- **D_{im}** Immersed Depth (Meter)
- **D_L** Liquid Level between Plates (Meter)
- **F** Force Level (Newton)
- **F_b** Buoyancy Force (Newton)
- **L** Displacer Length (Meter)
- **R** Plate Height (Meter)
- **V_m** Material Volume (Cubic Meter)
- **W_a** Air Weight (Kilogram)
- **W_b** Body Weight (Kilogram)
- **W_f** Force Sensor Weight (Kilogram)
- **W_{ml}** Material Weight Level (Kilogram)
- **γ** Fluid Specific Weight (Newton per Cubic Meter)
- **ΔP** Pressure Change (Pascal)
- **μ** Dielectric Constant



Constants, Functions, Measurements used

- **Constant:** **pi**, 3.14159265358979323846264338327950288
Archimedes' constant
- **Function:** **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:** **Weight** in Kilogram (kg)
Weight Unit Conversion 
- **Measurement:** **Volume** in Cubic Meter (m³)
Volume Unit Conversion 
- **Measurement:** **Area** in Square Meter (m²)
Area Unit Conversion 
- **Measurement:** **Pressure** in Pascal (Pa)
Pressure Unit Conversion 
- **Measurement:** **Force** in Newton (N)
Force Unit Conversion 
- **Measurement:** **Capacitance** in Farad (F)
Capacitance Unit Conversion 
- **Measurement:** **Specific Weight** in Newton per Cubic Meter (N/m³)
Specific Weight Unit Conversion 



Check other formula lists

- [Flow Measurement Formulas](#) 
- [Level Measurement Formulas](#) 
- [Light Measurement Formulas](#) 

Feel free to SHARE this document with your friends!

PDF Available in

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

6/24/2024 | 7:30:44 AM UTC

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

