



Fluid Pressure and Its Measurement Formulas

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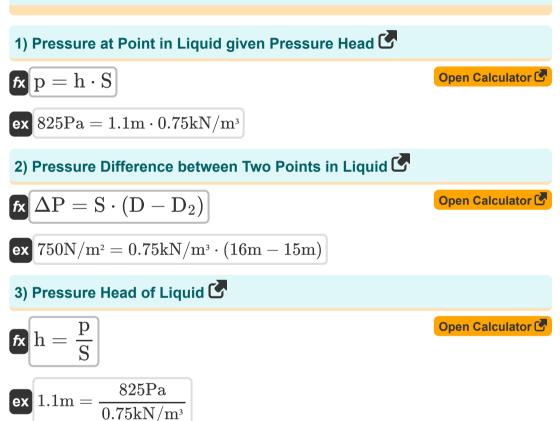
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List of 15 Fluid Pressure and Its Measurement Formulas

Fluid Pressure and Its Measurement C





 $\mathbf{2}$

4) Pressure Head of Liquid given Pressure Head of another Liquid having same Pressure

fx
$$\mathbf{h}_{-1} = rac{\mathbf{h}_{-2} \cdot \mathbf{w}}{\mathrm{SW}_1}$$

ex $13.84286 \mathrm{m} = rac{10.2 \mathrm{m} \cdot 19 \mathrm{kN/m^3}}{14 \mathrm{kN/m^3}}$

Equilibrium of Compressible Fluid Atmospheric Equilibrium 🕝





ex
$$12.63158 = \frac{24 \text{J/kg}^{*} ^{\circ}\text{C}}{1.9 \text{J/kg}^{*} ^{\circ}\text{C}}$$

6) Atmospheric Pressure According to Polytropic Process 🕑

$$fx P_{atm} = \frac{P_i \cdot \rho_0^a}{\rho_1^a}$$

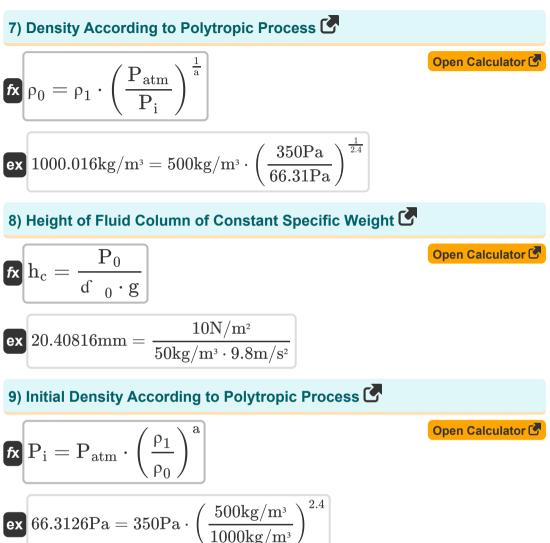
$$fx = \frac{P_i \cdot \rho_0^a}{\rho_1^a}$$

$$fx = \frac{66.31 Pa \cdot (1000 kg/m^3)^{2.4}}{(500 kg/m^3)^{2.4}}$$





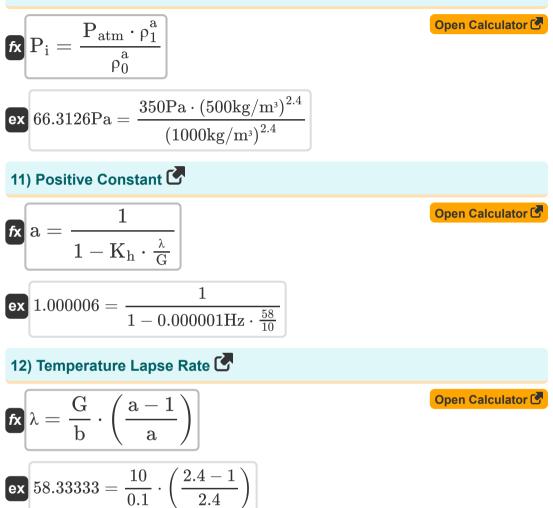
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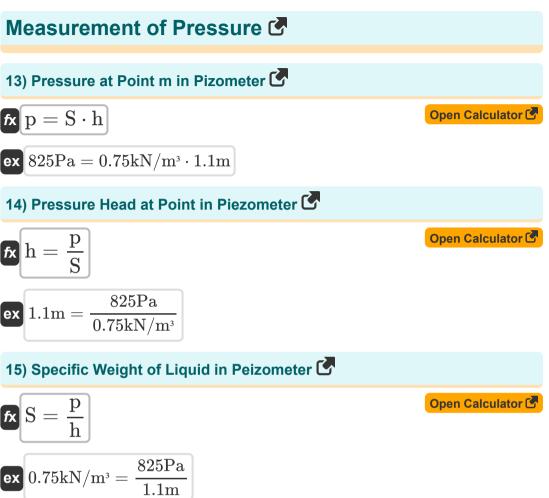




10) Initial Pressure according to Polytropic Process 🕑









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Variables Used

- a Constant a
- b Constant b
- C_p Specific Heat at Constant Pressure (Joule per Kilogram per Celcius)
- **C_V** Specific Heat at Constant Volume (Joule per Kilogram per Celcius)
- **D** Depth of Point 1 (Meter)
- **d** ₀ Density of Gas (Kilogram per Cubic Meter)
- **D**₂ Depth of Point 2 (Meter)
- g Acceleration due to Gravity (Meter per Square Second)
- G Specific Gravity of Fluid
- h Pressure Head (Meter)
- h 1 Pressure Head of Liquid 1 (Meter)
- h 2 Pressure Head of Liquid 2 (Meter)
- h_c Height of Fluid Column (Millimeter)
- k Adiabatic Index
- K_h Rate Constant (Hertz)
- **p** Pressure (Pascal)
- **P**₀ Pressure of Gas (Newton per Square Meter)
- Patm Atmospheric Pressure (Pascal)
- P_i Initial Pressure of System (Pascal)
- **S** Specific Weight of Liquid in Piezometer (Kilonewton per Cubic Meter)
- SW₁ Specific Weight 1 (Kilonewton per Cubic Meter)
- W 2 Specific Weight of Liquid 2 (Kilonewton per Cubic Meter)

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- **ΔP** Pressure Difference (Newton per Square Meter)
- λ Temperature Lapse Rate
- ρ₀ Density of Fluid (Kilogram per Cubic Meter)
- **p₁** Density 1 (Kilogram per Cubic Meter)



Constants, Functions, Measurements used

- Measurement: Length in Meter (m), Millimeter (mm) Length Unit Conversion
- Measurement: **Pressure** in Pascal (Pa), Newton per Square Meter (N/m²) *Pressure Unit Conversion*
- Measurement: Acceleration in Meter per Square Second (m/s²) Acceleration Unit Conversion
- Measurement: Frequency in Hertz (Hz) Frequency Unit Conversion
- Measurement: Specific Heat Capacity in Joule per Kilogram per Celcius (J/kg*°C)
 Specific Heat Capacity Unit Conversion
- Measurement: Density in Kilogram per Cubic Meter (kg/m³)
 Density Unit Conversion
- Measurement: Specific Weight in Kilonewton per Cubic Meter (kN/m³) Specific Weight Unit Conversion

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