Important Slope Stability Analysis using Culman's Method Formulas PDF









28) Unit Weight of Soil given Weight of Wedge Formula 🗂					
	$\gamma = \frac{W_{we}}{\frac{L \cdot h}{2}}$	Example with Units $18.3508 \text{ kN/m}^3 = \frac{138.09 \text{ kN}}{\frac{5 \text{ m} \cdot 3.01 \text{ m}}{2}}$		Evaluate Formula 순	
29) Weight of Wedge of Soil Formula 🕝					
	Formula $W_{we} = \frac{L \cdot h \cdot \gamma}{2}$	$\hline \begin{array}{c} \mbox{Example with Units} \\ \hline \\ 135.45_{kN} \ = \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $		Evaluate Formula 😭	

Variables used in list of Slope Stability Analysis using Culman's Method Formulas above

- Cohesion in Soil (Pascal)
- C_{eff} Effective Cohesion in Geotech as Kilopascal (Kilopascal)
- Cm Mobilized Cohesion in Soil Mechanics (Kilonewton per Square Meter)
- Cmob Mobilized Cohesion in Kilopascal (Kilopascal)
- Cs Cohesion of Soil (Kilopascal)
- Fc Cohesive Force in KN (Kilonewton)
- F_s Factor of Safety in Soil Mechanics
- h Height of Wedge (Meter)
- H Height from Toe of Wedge to Top of Wedge (Meter)
- I Angle of Inclination to Horizontal in Soil (Degree)
- L Length of Slip Plane (Meter)
- T_f Shear Strength of Soil (Pascal)
- W Weight of Wedge (Kilogram)
- Wwe Weight of Wedge in Kilonewton (Kilonewton)
- Wwedge Weight of Wedge in Newton (Newton)
- Y Unit Weight of Soil (Kilonewton per Cubic Meter)
- γw Unit Weight of Water in Soil Mechanics (Newton per Cubic Meter)
- ζ soil Shear Strength (Megapascal)
- ζ_{soil} Shear Stress of Soil in Megapascal (Megapascal)
- θ Slope Angle (Degree)
- + θ_{cr} Critical Slope Angle in Soil Mechanics (Degree)
- θ_i Angle of Inclination in Soil Mechanics (Degree)
- θ_{slope} Slope Angle in Soil Mechanics (Degree)
- σ_{effn} Effective Normal Stress of Soil in Megapascal (Megapascal)
- T_S Average Shear Stress on Shear Plane in Soil Mech (Newton per Square Meter)
- φ Angle of Internal Friction (Degree)
- Φ_i Angle of Internal Friction of Soil (Degree)
- φ_m Angle of Mobilized Friction (Degree)
- φ_{mob} Angle of Mobilized Friction in Soil Mechanics (Degree)

Constants, Functions, Measurements used in list of Slope Stability Analysis using Culman's Method Formulas above

- constant(s): pi, 3.14159265358979323846264338327950288 Archimedes' constant
- Functions: acos, acos(Number)

The inverse cosine function, is the inverse function of the cosine function. It is the function that takes a ratio as an input and returns the angle whose cosine is equal to that ratio.

- Functions: asin, asin(Number)
 The inverse sine function, is a trigonometric function that takes a ratio of two sides of a right triangle and outputs the angle opposite the side with the given ratio.
- Functions: atan, atan(Number) Inverse tan is used to calculate the angle by applying the tangent ratio of the angle, which is the opposite side divided by the adjacent side of the right triangle.
- Functions: cos, cos(Angle)
 Cosine of an angle is the ratio of the side adjacent to the angle to the hypotenuse of the triangle.
- Functions: cosec, cosec(Angle) The cosecant function is a trigonometric function that is the reciprocal of the sine function.
- Functions: sec, sec(Angle) Secant is a trigonometric function that is defined ratio of the hypotenuse to the shorter side adjacent to an acute angle (in a right-angled triangle); the reciprocal of a cosine.
- Functions: sin, sin(Angle) Sine is a trigonometric function that describes the ratio of the length of the opposite side of a right triangle to the length of the hypotenuse.
- Functions: tan, tan(Angle) The tangent of an angle is a trigonometric ratio of the length of the side opposite an angle to the length of the side adjacent to an angle in a right triangle.
- Measurement: Length in Meter (m)
 Length Unit Conversion
- Measurement: Weight in Kilogram (kg) Weight Unit Conversion
- Measurement: Pressure in Kilopascal (kPa), Megapascal (MPa), Kilonewton per Square Meter (kN/m²), Pascal (Pa), Newton per Square Meter (N/m²)

Pressure Unit Conversion 🕝

- Measurement: Force in Kilonewton (kN), Newton (N)
 Force Unit Conversion I
- Measurement: Angle in Degree (°) Angle Unit Conversion
- Measurement: Specific Weight in Kilonewton per Cubic Meter (kN/m³), Newton per Cubic Meter (N/m³) Specific Weight Unit Conversion
- Measurement: Stress in Megapascal (MPa), Kilopascal (kPa) Stress Unit Conversion

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