# Important Channel Flow Time and Time of Concentration Formulas PDF



**Formulas Examples** with Units

#### List of 9

Important Channel Flow Time and Time of **Concentration Formulas** 

1) Channel Flow Time given Total Time of Concentration Formula



Evaluate Formula

 $T_{m/f} = t_c - T_i$ 

Example with Units  $19.44 \, \text{min} = 114.22 \, \text{min} - 94.78 \, \text{min}$ 

2) Channel Flow Time or Gutter Flow Time Formula C

Example with Units

Evaluate Formula

3) Inlet Time given Total Time of Concentration Formula C

Example with Units

 $94.78 \, \text{min} = 114.22 \, \text{min} - 19.44 \, \text{min}$ 

Evaluate Formula

4) Inlet Time or Time of Equilibrium Formula

Formula

Example with Units

 $94.6166_{min} = \left(0.885 \cdot \left(\frac{(4_{km})^3}{10.05_m}\right)\right)^{0.385}$ 

Evaluate Formula (

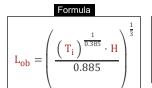
5) Length of Drain given Channel Flow Time Formula C

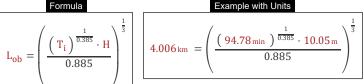
Example with Units

Evaluate Formula (

 $3.4992 \, \text{km} = 19.44 \, \text{min} \cdot 3 \, \text{m/s}$ 





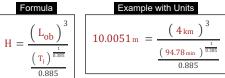




Evaluate Formula (

### 7) Total Fall of Level from Critical Point to Mouth of Drain given Inlet Time Formula 🕝





#### 8) Total Time of Concentration Formula 🕝

Formula 
$$t_{c} = T_{i} + T_{m/f}$$



Evaluate Formula (

#### 9) Velocity in Drain given Channel Flow Time Formula C



Formula Example with Units 
$$V = \frac{L}{T_{m/f}} \qquad 3.0007 \, \text{m/s} = \frac{3.5 \, \text{km}}{19.44 \, \text{min}}$$



#### Variables used in list of Channel Flow Time and Time of Concentration Formulas above

- **H** Fall of Level (Meter)
- L Length of Drain (Kilometer)
- Lob Length of Overland Flow (Kilometer)
- t<sub>c</sub> Time of Concentration (Minute)
- T<sub>i</sub> Inlet Time (Minute)
- T<sub>m/f</sub> Channel Flow Time (Minute)
- V Velocity in Drain (Meter per Second)

# Constants, Functions, Measurements used in list of Channel Flow Time and Time of Concentration Formulas above

- Measurement: Length in Kilometer (km), Meter (m)
- Length Unit Conversion

  Measurement: Time in Minute (min)

Time Unit Conversion

• Measurement: Speed in Meter per Second (m/s)
Speed Unit Conversion

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