Important Empirical Equations of Runoff Volume Formulas PDF

Formulas
Examples
with Units

List of 23
Important Empirical Equations of Runoff Volume Formulas

1) Inglis and Dsouza Formula (1929) Formulas

1.1) Equation for Runoff for Deccan Plateau Formula

Evaluate Formula

Formula	Example with Units
$R = \left(\frac{1}{254}\right) \cdot P \cdot (P - 17.8)$	$16.8898\,\text{cm} = \left(\frac{1}{254}\right) \cdot 75\,\text{cm} \cdot (75\,\text{cm} - 17.8)$

1.2) Equation for Runoff for Ghat Regions of Western India Formula

Evaluate Formula

Formula	Example with Units
$R = 0.85 \cdot P - 30.5$	$33.25\,\text{cm} = 0.85 \cdot 75\,\text{cm} - 30.5$

2) Barlow's Formula (1915) Formulas

2.1) Barlow's Formula for Runoff Formula

Evaluate Formula

Formula	Example with Units
$R = K_b \cdot P$	$11.25\,\text{cm} = 0.15 \cdot 75\,\text{cm}$

2.2) Barlow's Formula for Runoff in Average Catchment with Average or Varying Rainfall Formula

Evaluate Formula

Formula	Example with Units
$R = 0.20 \cdot P$	$15\,\text{cm} = 0.20 \cdot 75\,\text{cm}$

2.3) Barlow's Formula for Runoff in Average Catchment with Continuous Downpour Formula

Evaluate Formula

Formula	Example with Units
$R = 0.32 \cdot P$	$24\,\text{cm} = 0.32 \cdot 75\,\text{cm}$

2.4) Barlow's Formula for Runoff in Average Catchment with Light Rain Formula

Evaluate Formula

Formula	Example with Units
$R = 0.16 \cdot P$	$12\,\text{cm} = 0.16 \cdot 75\,\text{cm}$

2.5) Barlow's Formula for Runoff in Flat Cultivated and Absorbent Soils with Average or Varying Rainfall Formula

Evaluate Formula

Formula	Example with Units
$R = 0.10 \cdot P$	$7.5\,\text{cm} = 0.10 \cdot 75\,\text{cm}$

2.6) Barlow's Formula for Runoff in Flat Cultivated and Absorbent Soils with Continuous Downpour Formula

Evaluate Formula

Formula	Example with Units
$R = 0.15 \cdot P$	$11.25\,\text{cm} = 0.15 \cdot 75\,\text{cm}$

2.7) Barlow's Formula for Runoff in Flat Cultivated and Absorbent Soils with Light Rain Formula

Evaluate Formula

Formula	Example with Units
$R = 0.07 \cdot P$	$5.25\,\text{cm} = 0.07 \cdot 75\,\text{cm}$

2.8) Barlow's Formula for Runoff in Flat Partly Cultivated Stiff Soils with Average or Varying Rainfall Formula

Evaluate Formula

Formula	Example with Units
$R = 0.15 \cdot P$	$11.25\,\text{cm} = 0.15 \cdot 75\,\text{cm}$

2.9) Barlow's Formula for Runoff in Flat Partly Cultivated Stiff Soils with Continuous Downpour Formula

Evaluate Formula

Formula	Example with Units
$R = 0.18 \cdot P$	$13.5\,\text{cm} = 0.18 \cdot 75\,\text{cm}$

2.10) Barlow's Formula for Runoff in Flat Partly Cultivated Stiff Soils with Light Rain Formula

Evaluate Formula

Formula	Example with Units
$R = 0.12 \cdot P$	$9\,\text{cm} = 0.12 \cdot 75\,\text{cm}$

2.11) Barlow's Formula for Runoff in Hills and Plains with Little Cultivation and Continuous Downpour Formula

Evaluate Formula

Formula	Example with Units
$R = 0.60 \cdot P$	$45\,\text{cm} = 0.60 \cdot 75\,\text{cm}$

2.12) Barlow's Formula for Runoff in Hills and Plains with Little Cultivation and Light Rainfall Formula

Evaluate Formula

Formula	Example with Units
$R = 0.28 \cdot P$	$21\,\text{cm} = 0.28 \cdot 75\,\text{cm}$

2.13) Formula for Runoff in Hills and Plains with Little Cultivation and Average or Varying Rainfall Formula

Evaluate Formula

Formula	Example with Units
$R = 0.35 \cdot P$	$26.25\,\text{cm} = 0.35 \cdot 75\,\text{cm}$

2.14) Formula for Runoff in Very Hilly, Steep and Hardly any Cultivation Catchment with Light Rain Formula

Evaluate Formula

Formula	Example with Units
$R = 0.36 \cdot P$	$27\,\text{cm} = 0.36 \cdot 75\,\text{cm}$

2.15) Runoff in Very Hilly, Steep and Hardly any Cultivation Catchment with Average or Varying Rainfall Formula

Evaluate Formula

Formula	Example with Units
$R = 0.45 \cdot P$	$33.75\,\text{cm} = 0.45 \cdot 75\,\text{cm}$

2.16) Runoff in Very Hilly, Steep and Hardly any Cultivation Catchment with Continuous Downpour Formula

Evaluate Formula

Formula	Example with Units
$R = 0.81 \cdot P$	$60.75\,\text{cm} = 0.81 \cdot 75\,\text{cm}$

3) Khoslas's Formula (1960) Formulas

3.1) Mean Monthly Temperature of Catchment given Monthly Losses Formula

Evaluate Formula

Formula	Example with Units
$T_f = \frac{L_m}{0.48}$	$29.1667\,^\circ\text{C} = \frac{14\,\text{cm}}{0.48}$

3.2) Monthly Losses given Mean Monthly Temperature of Catchment Formula

Evaluate Formula

Formula	Example with Units
$L_m = 0.48 \cdot T_f$	$14.4\,\text{cm} = 0.48 \cdot 30\,^\circ\text{C}$

3.3) Monthly Losses using Monthly Runoff Formula

Evaluate Formula

Formula	Example with Units
$L_m = P_m - R_m$	$14\,\text{cm} = 32\,\text{cm} - 18\,\text{cm}$

3.4) Monthly Precipitation given Monthly Runoff Formula

Evaluate Formula

Formula	Example with Units
$P_m = R_m + L_m$	$32\,\text{cm} = 18\,\text{cm} + 14\,\text{cm}$

3.5) Monthly Runoff Formula

Evaluate Formula

Formula

$$R_m = P_m - L_m$$

Example with Units

$$18\,\text{cm} = 32\,\text{cm} - 14\,\text{cm}$$

Variables used in list of Empirical Equations of Runoff Volume Formulas above

- K_b Barlow's Runoff Coefficient
- L_m Monthly Losses *(Centimeter)*
- **P** Rainfall *(Centimeter)*
- P_m Monthly Rainfall *(Centimeter)*
- **R** Runoff *(Centimeter)*
- R_m Monthly Runoff *(Centimeter)*
- T_f Mean Monthly Temperature *(Celsius)*

Constants, Functions, Measurements used in list of Empirical Equations of Runoff Volume Formulas above

- Measurement: **Length** in Centimeter (cm)
  Length Unit Conversion
- Measurement: **Temperature** in Celsius (°C)
  Temperature Unit Conversion

Download other Important Runoff Volume PDFs

- Important Empirical Equations of Runoff Volume Formulas
- Important SCS-CN Method of Runoff Volume Formulas
- Important Rainfall-Runoff Correlation and Strange's Tables Formulas
- Important Watershed and Yield Formulas

Try our Unique Visual Calculators

- Reverse percentage
- HCF calculator
- Simple fraction

Please SHARE this PDF with someone who needs it!

This PDF can be downloaded in these languages

English Spanish French German Russian Italian Portuguese Polish Dutch

7/9/2024 | 6:15:23 AM UTC