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Rainfall Infiltration Method Formulas

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List of 43 Rainfall Infiltration Method Formulas

Rainfall Infiltration Method

1) Catchment Area when Recharge from Rainfall is Considered

Open Calculator

fx $$A_{cr} = \frac{R_{rfm}}{f \cdot P_{nm}}$$

ex $$13.25758\text{m}^2 = \frac{7\text{m}^3/\text{s}}{22 \cdot 0.024\text{m}}$$

2) Normal Rainfall in Monsoon Season

Open Calculator

fx $$P_{nm} = \frac{R_{rfm}}{f \cdot A_{cr}}$$

ex $$0.023923\text{m} = \frac{7\text{m}^3/\text{s}}{22 \cdot 13.3\text{m}^2}$$

3) Rainfall Infiltration Factor when Recharge from Rainfall is Considered

Open Calculator

fx $$f = \frac{R_{rfm}}{A_{cr} \cdot P_{nm}}$$

ex $$21.92982 = \frac{7\text{m}^3/\text{s}}{13.3\text{m}^2 \cdot 0.024\text{m}}$$

4) Recharge from Rainfall in Monsoon Season by Rainfall Infiltration Method

Open Calculator

$$R_{rfm} = f \cdot A_{cr} \cdot P_{nm}$$

$$7.0224\text{m}^3/\text{s} = 22 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

Maximum value of Rainfall Factor for Various Hydrogeologic Conditions based on the Norms

5) Recharge from Rainfall in Alluvial East Coast Areas for Known Maximum Rainfall Factor

Open Calculator

$$R_{aec} = 18 \cdot A_{cr} \cdot P_{nm}$$

$$5.7456\text{m}^3/\text{s} = 18 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

6) Recharge from Rainfall in Alluvial Indo Gangetic and Inland Areas for Known Max Rainfall Factor

Open Calculator

$$R_{ai} = 25 \cdot A_{cr} \cdot P_{nm}$$

$$7.98\text{m}^3/\text{s} = 25 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

7) Recharge from Rainfall in Alluvial West Coast Areas for Known Maximum Rainfall Factor

Open Calculator

$$R_{awc} = 12 \cdot A_{cr} \cdot P_{nm}$$

$$3.8304\text{m}^3/\text{s} = 12 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

8) Recharge from Rainfall in Hard Rock Areas with Consolidated Sandstone for Maximum Rainfall Factor

Open Calculator

$$R_{hra} = 8 \cdot A_{cr} \cdot P_{nm}$$

$$2.5536\text{m}^3/\text{s} = 8 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

9) Recharge from Rainfall in Hard Rock Areas with Granulite Facies for Known Rainfall Factor

Open Calculator

$$R_{hra} = 6 \cdot A_{cr} \cdot P_{nm}$$

$$1.9152\text{m}^3/\text{s} = 6 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

10) Recharge from Rainfall in Hard Rock Areas with Laterite for Known Maximum Rainfall Factor

Open Calculator

$$R_{hrl} = 14 \cdot A_{cr} \cdot P_{nm}$$

$$4.4688\text{m}^3/\text{s} = 14 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

11) Recharge from Rainfall in Hard Rock Areas with Low Clay Content for Known Rainfall Factor

Open Calculator

$$R_{hrc} = 12 \cdot A_{cr} \cdot P_{nm}$$

$$3.8304\text{m}^3/\text{s} = 12 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

12) Recharge from Rainfall in Hard Rock Areas with Massive Poorly Fractured Rocks

Open Calculator

$$R_{hra} = 7 \cdot A_{cr} \cdot P_{nm}$$

$$2.2344\text{m}^3/\text{s} = 7 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

13) Recharge from Rainfall in Hard Rock Areas with Phyllites, Shales for Known Max Rainfall Factor

Open Calculator

$$R_{hrp} = 14 \cdot A_{cr} \cdot P_{nm}$$

$$4.4688\text{m}^3/\text{s} = 14 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

14) Recharge from Rainfall in Hard Rock Areas with Semi Consolidated Sandstone for Max Rainfall Factor

Open Calculator

$$R_{hra} = 8 \cdot A_{cr} \cdot P_{nm}$$

$$2.5536\text{m}^3/\text{s} = 8 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

15) Recharge from Rainfall in Hard Rock Areas with Significant Clay Content for Known Rainfall Factor

Open Calculator

$$R_{hra} = 9 \cdot A_{cr} \cdot P_{nm}$$

$$2.8728\text{m}^3/\text{s} = 9 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

16) Recharge from Rainfall in Hard Rock Areas with Vesicular and Jointed Basalt for Max Rainfall Factor

Open Calculator

fx $R_{hra} = 9 \cdot A_{cr} \cdot P_{nm}$

ex $2.8728\text{m}^3/\text{s} = 9 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

17) Recharge from Rainfall in Hard Rock Areas with Weathered Basalt for Known Maximum Rainfall Factor

Open Calculator

fx $R_{hra} = 6 \cdot A_{cr} \cdot P_{nm}$

ex $1.9152\text{m}^3/\text{s} = 6 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

Minimum Value of Rainfall Factor for Various Hydrogeologic Conditions based on the Norms

18) Recharge from Rainfall in Hard Rock Areas consisting Vesicular and Jointed Basalt

Open Calculator

fx $R_{hrv} = 5 \cdot A_{cr} \cdot P_{nm}$

ex $1.596\text{m}^3/\text{s} = 5 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

19) Recharge from Rainfall in Hard Rock Areas consisting Weathered Basalt

Open Calculator

fx $R_{wb} = 4 \cdot A_{cr} \cdot P_{nm}$

ex $1.2768\text{m}^3/\text{s} = 4 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

20) Recharge from Rainfall in Hard Rock Areas of Massive Poorly Fractured Rocks

Open Calculator

$$R_{fr} = 5 \cdot A_{cr} \cdot P_{nm}$$

$$1.596\text{m}^3/\text{s} = 5 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

21) Recharge from Rainfall in Hard Rock Areas of Significant Clay content for Known Min Rainfall Factor

Open Calculator

$$R_{hra} = 8 \cdot A_{cr} \cdot P_{nm}$$

$$2.5536\text{m}^3/\text{s} = 8 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

22) Recharge from Rainfall in Hard Rock Areas with Consolidated Sandstone

Open Calculator

$$R_{ss} = 6 \cdot A_{cr} \cdot P_{nm}$$

$$1.9152\text{m}^3/\text{s} = 6 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

23) Recharge from Rainfall in Hard Rock Areas with Granulite Facies for Known Minimum Rainfall Factor

Open Calculator

$$R_{gf} = 4 \cdot A_{cr} \cdot P_{nm}$$

$$1.2768\text{m}^3/\text{s} = 4 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

24) Recharge from Rainfall in Hard Rock Areas with Laterite for Known Min Rainfall Factor

Open Calculator

$$R_{hra} = 12 \cdot A_{cr} \cdot P_{nm}$$

$$3.8304\text{m}^3/\text{s} = 12 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

25) Recharge from Rainfall in Hard Rock Areas with Low Clay content for Known Minimum Rainfall Factor

Open Calculator

$$R_{hra} = 10 \cdot A_{cr} \cdot P_{nm}$$

$$3.192\text{m}^3/\text{s} = 10 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

26) Recharge from Rainfall in Hard Rock Areas with Phyllites, Shales given Min Rainfall Factor

Open Calculator

$$R_{hra} = 10 \cdot A_{cr} \cdot P_{nm}$$

$$3.192\text{m}^3/\text{s} = 10 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

27) Recharge from Rainfall in Hard Rock Areas with Semi Consolidated Sandstone for Min Rainfall Factor

Open Calculator

$$R_{ss} = 6 \cdot A_{cr} \cdot P_{nm}$$

$$1.9152\text{m}^3/\text{s} = 6 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

28) Recharge from Rainfall in Indo Gangetic and Inland Alluvial Areas for Known Minimum Rainfall Factor

Open Calculator

fx $R_{rf} = 20 \cdot A_{cr} \cdot P_{nm}$

ex $6.384\text{m}^3/\text{s} = 20 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

29) Recharge from Rainfall in Silty Alluvial Areas for Known Minimum Rainfall Factor

Open Calculator

fx $R_{rf} = 20 \cdot A_{cr} \cdot P_{nm}$

ex $6.384\text{m}^3/\text{s} = 20 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

30) Recharge from Rainfall in West Coast Alluvial Areas for Known Minimum Rainfall Factor

Open Calculator

fx $R_{awc} = 8 \cdot A_{cr} \cdot P_{nm}$

ex $2.5536\text{m}^3/\text{s} = 8 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

Recommended Value for Rainfall Factor for Various Hydrogeologic Conditions based on Norms

31) Recharge from Rainfall in Alluvial Indo Gangetic and Inland Areas

Open Calculator

fx $R_{ai} = 22 \cdot A_{cr} \cdot P_{nm}$

ex $7.0224\text{m}^3/\text{s} = 22 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$

32) Recharge from Rainfall in East Coast Alluvial Areas

Open Calculator

$$R_{aec} = 16 \cdot A_{cr} \cdot P_{nm}$$

$$5.1072\text{m}^3/\text{s} = 16 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

33) Recharge from Rainfall in Hard Rock Areas consisting Massive Poorly Fractured Rocks

Open Calculator

$$R_{fr} = 6 \cdot A_{cr} \cdot P_{nm}$$

$$1.9152\text{m}^3/\text{s} = 6 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

34) Recharge from Rainfall in Hard Rock Areas of Consolidated Sandstone

Open Calculator

$$R_{ss} = 7 \cdot A_{cr} \cdot P_{nm}$$

$$2.2344\text{m}^3/\text{s} = 7 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

35) Recharge from Rainfall in Hard Rock Areas with Granulite Facies

Open Calculator

$$R_{gf} = 5 \cdot A_{cr} \cdot P_{nm}$$

$$1.596\text{m}^3/\text{s} = 5 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

36) Recharge from Rainfall in Hard Rock Areas with Laterite

Open Calculator

$$R_{hrl} = 13 \cdot A_{cr} \cdot P_{nm}$$

$$4.1496\text{m}^3/\text{s} = 13 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

37) Recharge from Rainfall in Hard Rock Areas with Low Clay Content

Open Calculator

$$R_{hrc} = 11 \cdot A_{cr} \cdot P_{nm}$$

$$3.5112\text{m}^3/\text{s} = 11 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

38) Recharge from Rainfall in Hard Rock Areas with Phyllites, Shales

Open Calculator

$$R_{hrp} = 12 \cdot A_{cr} \cdot P_{nm}$$

$$3.8304\text{m}^3/\text{s} = 12 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

39) Recharge from Rainfall in Hard Rock Areas with Semi Consolidated Sandstone

Open Calculator

$$R_{ss} = 7 \cdot A_{cr} \cdot P_{nm}$$

$$2.2344\text{m}^3/\text{s} = 7 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

40) Recharge from Rainfall in Hard Rock Areas with Significant Clay Content

Open Calculator

$$R_{hra} = 8 \cdot A_{cr} \cdot P_{nm}$$

$$2.5536\text{m}^3/\text{s} = 8 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

41) Recharge from Rainfall in Hard Rock Areas with Vesicular and Jointed Basalt

Open Calculator

$$R_{hra} = 8 \cdot A_{cr} \cdot P_{nm}$$

$$2.5536\text{m}^3/\text{s} = 8 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

42) Recharge from Rainfall in Hard Rock Areas with Weathered Basalt

Open Calculator

$$R_{wb} = 5 \cdot A_{cr} \cdot P_{nm}$$

$$1.596\text{m}^3/\text{s} = 5 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

43) Recharge from Rainfall in West Coast Areas based on Recommended Rainfall Infiltration Factor

Open Calculator

$$R_{awc} = 10 \cdot A_{cr} \cdot P_{nm}$$

$$3.192\text{m}^3/\text{s} = 10 \cdot 13.3\text{m}^2 \cdot 0.024\text{m}$$

Variables Used

- A_{cr} Area of Computation for Recharge *(Square Meter)*
- **f** Rainfall Infiltration Factor
- P_{nm} Normal Rainfall in Monsoon Season *(Meter)*
- R_{aec} Recharge from Rainfall in Alluvial East Coast *(Cubic Meter per Second)*
- R_{ai} Recharge from Rainfall in Alluvial Indo *(Cubic Meter per Second)*
- R_{awc} Recharge from Rainfall in Alluvial West Coast *(Cubic Meter per Second)*
- R_{fr} Rainfall Recharge in Hard Rock Poorly Fractured *(Cubic Meter per Second)*
- R_{gf} Rainfall Recharge in Hard Rock Granulite Facies *(Cubic Meter per Second)*
- R_{hra} Recharge from Rainfall in Hard Rock Areas *(Cubic Meter per Second)*
- R_{hrc} Recharge from Rainfall in Hard Rock Low Clay *(Cubic Meter per Second)*
- R_{hrl} Recharge from Rainfall in Hard Rock Laterite *(Cubic Meter per Second)*
- R_{hrp} Recharge from Rainfall in Hard Rock Phyllites *(Cubic Meter per Second)*
- R_{hrv} Recharge from Rainfall in Hard Rock Vesicular *(Cubic Meter per Second)*
- R_{rf} Recharge from Rainfall *(Cubic Meter per Second)*

- R_{rfm} Recharge from Rainfall in Monsoon Season *(Cubic Meter per Second)*
- R_{ss} Rainfall Recharge in Hard Rock Sandstone *(Cubic Meter per Second)*
- R_{wb} Rainfall Recharge in Hard Rock Weathered Basalt *(Cubic Meter per Second)*

Constants, Functions, Measurements used

- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Area** in Square Meter (m²)
  Area Unit Conversion
- Measurement: **Volumetric Flow Rate** in Cubic Meter per Second (m³/s)
  Volumetric Flow Rate Unit Conversion

Check other formula lists

- **Groundwater Level Fluctuation Formulas**
- **Rainfall Infiltration Method Formulas**
- **Specific Yield Method Formulas**

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