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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 🔗

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

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

2) Normal Rainfall in Monsoon Season 🔗

Open Calculator 🔗

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

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

3) Rainfall Infiltration Factor when Recharge from Rainfall is Considered 🔗

Open Calculator 🔗

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

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

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

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

Open Calculator ⤴

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

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 ⤴

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

Open Calculator ⤴

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

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

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

Open Calculator ⤴

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

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

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

Open Calculator ⤴

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

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

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

Open Calculator

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

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

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

Open Calculator

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

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

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

Open Calculator

ex $4.4688 m^3/s = 14 \cdot 13.3 m^2 \cdot 0.024 m$

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

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

Open Calculator

ex $3.8304 m^3/s = 12 \cdot 13.3 m^2 \cdot 0.024 m$

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

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

Open Calculator 🡕

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

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

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

Open Calculator 🡕

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

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

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

Open Calculator 🡕

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

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

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

Open Calculator 🡕

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

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

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

Open Calculator 📲

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 📲

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

Open Calculator 📲

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 📲

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

Open Calculator 📲

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 📲

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

Open Calculator 📲

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 ⬀

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

Open Calculator ⬀

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

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

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

Open Calculator ⬀

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

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

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

Open Calculator ⬀

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

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

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

Open Calculator ⬀

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

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

Open Calculator 📲

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 📲

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

Open Calculator 📲

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 📲

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

Open Calculator 📲

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 📲

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

Open Calculator 📲

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 🔗

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

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

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

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

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

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

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

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

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

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

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

36) Recharge from Rainfall in Hard Rock Areas with Laterite 🔗

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

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

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

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

Open Calculator 🔗

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

Variables Used

- A_{cr} Area of Computation for Recharge *(Square Meter)*

- f Rainfall Infiltration Factor

- P_{nm} Normal Rainfall in Monsoon Season *(Meter)*

- R Recharge from Rainfall *(Cubic Meter per Second)*

- 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$_{rfm}$** 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

- **Rainfall Infiltration Method Formulas** 🡵

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