



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 🗗

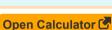


Open Calculator

$$egin{aligned} \mathbf{A}_{
m cr} = rac{\mathrm{R}_{
m rfm}}{\mathrm{f}\cdot\mathrm{P}_{
m nm}} \end{aligned}$$

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

2) Normal Rainfall in Monsoon Season 🖸



$$extbf{P}_{
m nm} = rac{
m R_{
m rfm}}{
m f\cdot A_{
m cr}}$$

$$oxed{ex} 0.023923 \mathrm{m} = rac{7 \mathrm{m}^3 / \mathrm{s}}{22 \cdot 13.3 \mathrm{m}^2}$$

3) Rainfall Infiltration Factor when Recharge from Rainfall is Considered



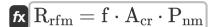
$$\mathbf{f}$$
 $\mathbf{f} = rac{\mathrm{R}_{\mathrm{rfm}}}{\mathrm{A}_{\mathrm{cr}}\cdot\mathrm{P}_{\mathrm{nm}}}$

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





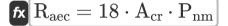
4) Recharge from Rainfall in Monsoon Season by Rainfall Infiltration Method



Open Calculator

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 🗗

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

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

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

Open Calculator

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

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

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

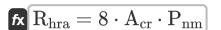
Open Calculator

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





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



Open Calculator

- ex $2.5536 \mathrm{m}^3/\mathrm{s} = 8 \cdot 13.3 \mathrm{m}^2 \cdot 0.024 \mathrm{m}$
- 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 $1.9152 \mathrm{m}^3/\mathrm{s} = 6 \cdot 13.3 \mathrm{m}^2 \cdot 0.024 \mathrm{m}$
- 10) Recharge from Rainfall in Hard Rock Areas with Laterite for Known Maximum Rainfall Factor
- fx $m [R_{hrl} = 14 \cdot A_{cr} \cdot P_{nm}]$

Open Calculator 🗗

- $ext{ex} \left[4.4688 ext{m}^3/ ext{s} = 14 \cdot 13.3 ext{m}^2 \cdot 0.024 ext{m}
 ight]$
- 11) Recharge from Rainfall in Hard Rock Areas with Low Clay Content for Known Rainfall Factor
- fx $m R_{hrc} = 12 \cdot A_{cr} \cdot P_{nm}$

Open Calculator

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



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

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

Open Calculator 🖸

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

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

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

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

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

Open Calculator

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

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

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

Open Calculator

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



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



Open Calculator

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

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

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

Open Calculator 🚰

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

19) Recharge from Rainfall in Hard Rock Areas consisting Weathered

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

Open Calculator

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





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

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

Open Calculator 🗗

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

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

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

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

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

Open Calculator 🗗

 $ext{ex} \left[1.9152 ext{m}^3/ ext{s} = 6 \cdot 13.3 ext{m}^2 \cdot 0.024 ext{m}
ight]$

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

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

Open Calculator

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



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

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

Open Calculator 🗗

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

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

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

Open Calculator

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

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

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

Open Calculator

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

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

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

Open Calculator

ex $1.9152 \mathrm{m}^{_3}/\mathrm{s} = 6 \cdot 13.3 \mathrm{m}^{_2} \cdot 0.024 \mathrm{m}$



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

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

Open Calculator 🗗

 $m ex~6.384m^3/s = 20\cdot 13.3m^2\cdot 0.024m$

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

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

Open Calculator

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

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

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

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



32) Recharge from Rainfall in East Coast Alluvial Areas

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

Open Calculator

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

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

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

Open Calculator

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

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

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

Open Calculator 🗗

 $\mathbf{ex} \left[2.2344 \mathrm{m}^3 / \mathrm{s} = 7 \cdot 13.3 \mathrm{m}^2 \cdot 0.024 \mathrm{m} \right]$

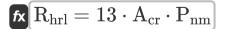
35) Recharge from Rainfall in Hard Rock Areas with Granulite Facies

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

Open Calculator

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

36) Recharge from Rainfall in Hard Rock Areas with Laterite



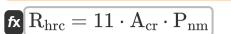
Open Calculator

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





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



Open Calculator 2

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

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

Open Calculator

 $\left[\mathbf{R}_{\mathrm{hrp}} = 12 \cdot \mathrm{A_{cr}} \cdot \mathrm{P_{nm}}
ight]$

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

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

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

Open Calculator

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

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

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

Open Calculator G

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

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

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

Open Calculator

ex $2.5536 \mathrm{m}^{_3}/\mathrm{s} = 8 \cdot 13.3 \mathrm{m}^{_2} \cdot 0.024 \mathrm{m}$





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



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

Open Calculator 🗗

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

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





 $oxed{ex} \left[3.192 \mathrm{m}^{_3}/\mathrm{s} = 10 \cdot 13.3 \mathrm{m}^{_2} \cdot 0.024 \mathrm{m}
ight]$



Variables Used

- A_{cr} Area of Computation for Recharge (Square Meter)
- f Rainfall Infiltration Factor
- P_{nm} Normal Rainfall in Monsoon Season (Meter)
- Raec Recharge from Rainfall in Alluvial East Coast (Cubic Meter per Second)
- Rai Recharge from Rainfall in Alluvial Indo (Cubic Meter per Second)
- Rawc 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)
- Rhrl 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 Specific Yield Method Formulas **Rainfall Infiltration Method**
- Formulas

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Formulas C

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