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List of 9 Basic Definitions Formulas

Basic Definitions

Specific Retention

1) Specific Retention given Porosity

$$\text{fx } \%S_r = \eta_v - \%S_y$$

[Open Calculator !\[\]\(de95854c7ee024cfadc48187bbb781b2_img.jpg\)](#)

$$\text{ex } 10 = 25 - 15$$

2) Specific Retention given Total Volume

$$\text{fx } \%S_r = \left(\frac{W_r}{V} \right) \cdot 100$$

[Open Calculator !\[\]\(6a9b39b98eb945faa14c645ec99e4eaa_img.jpg\)](#)

$$\text{ex } 10 = \left(\frac{2\text{m}^3}{20\text{m}^3} \right) \cdot 100$$

3) Specific Yield given Porosity

$$\text{fx } \%S_y = \eta_v - \%S_r$$

[Open Calculator !\[\]\(f1c5da15572e3e09d343161be98f508d_img.jpg\)](#)

$$\text{ex } 15 = 25 - 10.0$$



4) Specific Yield given Total Volume

$$fx \quad \%S_y = \left(\frac{W_y}{V} \right) \cdot 100$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)

$$ex \quad 50 = \left(\frac{10m^3}{20m^3} \right) \cdot 100$$

5) Total Volume given Specific Retention

$$fx \quad V = \left(\frac{W_r}{\%S_r} \right) \cdot 100$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

$$ex \quad 20m^3 = \left(\frac{2m^3}{10.0} \right) \cdot 100$$

6) Total Volume given Specific Yield

$$fx \quad V = \left(\frac{W_y}{\%S_y} \right) \cdot 100$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

$$ex \quad 66.66667m^3 = \left(\frac{10m^3}{15} \right) \cdot 100$$

7) Volume of Water Drained by Gravity given Specific Yield

$$fx \quad W_y = \frac{\%S_y \cdot V}{100}$$

[Open Calculator !\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\)](#)

$$ex \quad 3m^3 = \frac{15 \cdot 20m^3}{100}$$



8) Volume of Water Retained given Specific Retention

$$\text{fx } W_r = \frac{V \cdot \%S_r}{100}$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

$$\text{ex } 2\text{m}^3 = \frac{20\text{m}^3 \cdot 10.0}{100}$$

9) Volume Percent of Porosity Specific Yield and Specific Retention

$$\text{fx } \eta_v = \%S_y + \%S_r$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2_img.jpg\)](#)

$$\text{ex } 25 = 15 + 10.0$$




Variables Used

- $\%S_r$ Specific Retention Percentage
- $\%S_y$ Specific Yield Percentage
- V Total Volume (*Cubic Meter*)
- W_r Volume of Water Retained (*Cubic Meter*)
- W_y Volume of Water Drained by Gravity (*Cubic Meter*)
- η_v Volume Percent of Porosity



Constants, Functions, Measurements used

- **Measurement: Volume** in Cubic Meter (m^3)
Volume Unit Conversion 



Check other formula lists

- [Basic Definitions Formulas](#) 
- [Unsteady Flow Formulas](#) 
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