



Well Parameters Formulas

Calculators!

Examples!

Conversions!

Bookmark calculatoratoz.com, unitsconverters.com

Widest Coverage of Calculators and Growing - 30,000+ Calculators!

Calculate With a Different Unit for Each Variable - In built Unit Conversion!

Widest Collection of Measurements and Units - 250+ Measurements!

Feel free to SHARE this document with your friends!

Please leave your feedback here...



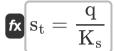


List of 15 Well Parameters Formulas

Well Parameters &

Well Efficiency

1) Drawdown given Specific Capacity



Open Calculator

$$9.333333m = \frac{7 \text{m}^3/\text{s}}{0.75}$$

2) Drawdown in Aquifer given Well Efficiency

fx
$$s = E \cdot s_t$$

Open Calculator 🗗

$$\texttt{ex} \ 9.99 \texttt{m} = 1.11 \cdot 9 \texttt{m}$$

3) Drawdown Inside Well given Well Efficiency

$$\mathbf{f}_{\mathbf{x}}\mathbf{s}_{\mathrm{t}}=rac{\mathbf{s}}{\mathrm{E}}$$

Open Calculator 🗗

$$\boxed{\mathbf{ex}} 9\mathrm{m} = \frac{9.99\mathrm{m}}{1.11}$$



Open Calculator

Open Calculator

Open Calculator 🚰

Open Calculator

fx $q = K_s \cdot s_t$

4) Pumping Rate given Specific Capacity

$$6.75 ext{m}^3/ ext{s} = 0.75 \cdot 9 ext{m}$$

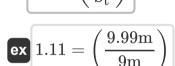
5) Specific Capacity

fx
$$m K_s = rac{q}{s_t}$$

 $ext{ex} 0.777778 = rac{7 ext{m}^3/ ext{s}}{9 ext{m}}$

6) Well Efficiency

 $\mathbf{E} = \left(rac{\mathrm{s}}{\mathrm{s_t}}
ight)$

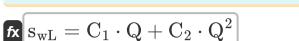


Well Loss

7) Equation for Formation Loss 🖸



8) Equation for Total Drawdown at Well 🚰



Open Calculator 🗗

 $oxed{ex} 30.45 = 10 \cdot 3.0 ext{m}^3/ ext{s} + 0.05 \cdot \left(3.0 ext{m}^3/ ext{s}
ight)^2$

9) Equation for Well Loss

Open Calculator

Open Calculator

fx $ext{CQ}^{ ext{n}} = ext{C}_2 \cdot ext{Q}^2$

 $extbf{ex} \left[0.45 ext{m} = 0.05 \cdot \left(3.0 ext{m}^3/ ext{s}
ight)^2
ight]$

Well-Field Design

10) Distance from Pumping Well

 $\mathbf{f}_{\mathrm{o}} = \sqrt{2.25 \cdot \mathrm{T} \cdot rac{\mathrm{t}}{\mathrm{S}}}$

= $\sqrt{2.25 \cdot 11 \mathrm{m}^2/\mathrm{s} \cdot rac{4\mathrm{h}}{6.2}}$

11) Drawdown across One Log Cycle given First Estimate of Pumping Rate

 $\Delta
m s = rac{Q_e}{2.7 \cdot T}$

ex $44.54545 = rac{1323 ext{m}^3/ ext{s}}{2.7 \cdot 11 ext{m}^2/ ext{s}}$







12) First Estimate of Pumping Rate

fx $Q_{ m e} = 2.7 \cdot T \cdot \Delta { m s}$

Open Calculator 🗗

Open Calculator 2

ex $1323.135 \mathrm{m}^3/\mathrm{s} = 2.7 \cdot 11 \mathrm{m}^2/\mathrm{s} \cdot 44.55$

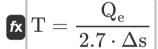
12) Storage Coefficient given Dictance from Pu



$$ext{S} = rac{2.25 \cdot ext{T} \cdot ext{t}}{ ext{r}_{ ext{o}}^2}$$

 $\mathbf{ex} \left[6.1875 = rac{2.25 \cdot 11 \mathrm{m}^2/\mathrm{s} \cdot 4 \mathrm{h}}{(4.0 \mathrm{m})^2}
ight]$

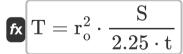
14) Transmissivity for First Estimate of Pumping Rate



Open Calculator

ex $10.99888 \mathrm{m}^2/\mathrm{s} = rac{1323 \mathrm{m}^3/\mathrm{s}}{2.7 \cdot 44.55}$

15) Transmissivity given Distance from Pumping Well



Open Calculator

$$extbf{ex} \left[11.02222 ext{m}^2/ ext{s} = \left(4.0 ext{m}
ight)^2 \cdot rac{6.2}{2.25 \cdot 4 ext{h}}
ight]$$



Variables Used

- C₁ Well Constant C1
- C₂ Well Constant C2
- CQⁿ Well Loss (Meter)
- E Well Efficiency
- K_S Specific Capacity
- q Pumping Rate (Cubic Meter per Second)
- Q Discharge (Cubic Meter per Second)
- Qe First Estimate of the Pumping Rate (Cubic Meter per Second)
- ro Distance from Pumping Well to Point Intersection (Meter)
- **S** Change in Drawdown (Meter)
- S Storage Coefficient (Well-Field Design)
- St Drawdown Inside the Well (Meter)
- S_{wl} Formation Losses
- t Time (Hour)
- T Transmissivity (Square Meter per Second)
- Δs Drawdown Across One Log Cycle





Constants, Functions, Measurements used

- Function: sqrt, sqrt(Number)

 A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.
- Measurement: Length in Meter (m)
 Length Unit Conversion
- Measurement: Time in Hour (h)

 Time Unit Conversion
- Measurement: Volumetric Flow Rate in Cubic Meter per Second (m³/s)
 Volumetric Flow Rate Unit Conversion
- Measurement: Kinematic Viscosity in Square Meter per Second (m²/s)

 Kinematic Viscosity Unit Conversion





Check other formula lists

- Aquifer Analysis and Properties
 Formulas
- Coefficient of Permeability Formulas
- Distance-Drawdown Analysis
 Formulas
- Open Wells Formulas

- Steady Flow into a Well Formulas
- Unconfined Flow Formulas
- Unsteady Flow in a Confined Aquifer Formulas
- Well Parameters Formulas

Feel free to SHARE this document with your friends!

PDF Available in

English Spanish French German Russian Italian Portuguese Polish Dutch

7/16/2024 | 5:41:03 AM UTC

Please leave your feedback here...



