



Confined Aquifer Formulas

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List of 60 Confined Aquifer Formulas

Confined Aquifer &

Aquifer Discharge 2

1) Confined Aquifer Discharge given Coefficient of Transmissibility

$$\left| \mathbf{Q}
ight| = rac{2 \cdot \pi \cdot \mathrm{T_{envi}} \cdot \mathrm{s_t}}{\log \left(\left(rac{\mathrm{R_w}}{\mathrm{r}}
ight), e
ight)}$$

Open Calculator 🗗

$$oxed{ex} 1.07059 \mathrm{m}^3/\mathrm{s} = rac{2 \cdot \pi \cdot 1.5 \mathrm{m}^2/\mathrm{s} \cdot 0.83 \mathrm{m}}{\logig(ig(rac{8.6 \mathrm{m}}{7.5 \mathrm{m}}ig), eig)}$$

2) Confined Aquifer Discharge given Coefficient of Transmissibility and Depth of Water

$$egin{aligned} \mathsf{Fx} \ \mathsf{Q} = rac{2.72 \cdot \mathrm{T_w} \cdot (\mathrm{h_2} - \mathrm{h_1})}{\log \left(\left(rac{\mathrm{r_2}}{\mathrm{r_1}}
ight), 10
ight)} \end{aligned}$$

$$\boxed{ 1.02266 \mathrm{m}^3/\mathrm{s} = \frac{2.72 \cdot 26.9 \mathrm{m}^2/\mathrm{s} \cdot \left(17.8644 \mathrm{m} - 17.85 \mathrm{m}\right)}{\log\left(\left(\frac{10.0 \mathrm{m}}{1.07 \mathrm{m}}\right), 10\right)} }$$



3) Confined Aquifer Discharge given Depth of Water in Two Wells 🗗

 $ext{Qcaq} = rac{2.72 \cdot ext{K}_{ ext{w}} \cdot ext{b}_{ ext{p}} \cdot (ext{h}_2 - ext{h}_1)}{ ext{log} \Big(\Big(rac{ ext{r}_2}{ ext{r}_1}\Big), 10 \Big)}$

Open Calculator 🗗

 $\boxed{1.009354 \text{m}^3/\text{s} = \frac{2.72 \cdot 1125 \text{cm/s} \cdot 2.36 \text{m} \cdot \left(17.8644 \text{m} - 17.85 \text{m}\right)}{\log\left(\left(\frac{10.0 \text{m}}{1.07 \text{m}}\right), 10\right)} }$

4) Confined Aquifer Discharge given Drawdown at Well

 $\left| \mathbf{Q}
ight| = rac{2 \cdot \pi \cdot \mathbf{K}_{\mathrm{WH}} \cdot \mathbf{b}_{\mathrm{p}} \cdot \mathbf{S}_{\mathrm{tw}}}{\log \left(\left(rac{\mathbf{R}_{\mathrm{w}}}{\mathrm{r}}
ight), e
ight)}$

Open Calculator

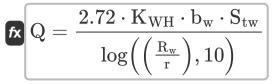
 $\boxed{1.00049 \text{m}^{_{3}}/\text{s} = \frac{2 \cdot \pi \cdot 10.00 \text{cm/s} \cdot 2.36 \text{m} \cdot 4.93 \text{m}}{\log \left(\left(\frac{8.6 \text{m}}{7.5 \text{m}}\right), e\right)}}$

5) Confined Aquifer Discharge with Base 10 given Coefficient of Transmissibility

 $ext{R} Q = rac{2.72 \cdot T_{envi} \cdot S_{tw}}{\log \left(\left(rac{R_w}{r}
ight), 10
ight)}$



6) Confined Aquifer Discharge with Base 10 given Drawdown at Well 🖒



Open Calculator 🗗

 $\boxed{1.127796 \text{m}^3/\text{s} = \frac{2.72 \cdot 10.00 \text{cm/s} \cdot 14.15 \text{m} \cdot 4.93 \text{m}}{\log \left(\left(\frac{8.6 \text{m}}{7.5 \text{m}} \right), 10 \right)} }$

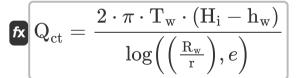
7) Discharge in Confined Aquifer

 $\mathbf{Q}_{\mathrm{c}} = rac{2 \cdot \pi \cdot \mathrm{K}_{\mathrm{WH}} \cdot \mathrm{b}_{\mathrm{w}} \cdot (\mathrm{H}_{\mathrm{i}} - \mathrm{h}_{\mathrm{w}})}{\log \left(\left(rac{\mathrm{R}_{\mathrm{w}}}{\mathrm{r}}
ight), e
ight)}$

Open Calculator

 $\frac{\text{ex}}{0.048671 \text{m}^3/\text{s}} = \frac{2 \cdot \pi \cdot 10.00 \text{cm/s} \cdot 14.15 \text{m} \cdot (2.48 \text{m} - 2.44 \text{m})}{\log \left(\left(\frac{8.6 \text{m}}{7.5 \text{m}}\right), e\right)}$

8) Discharge in Confined Aquifer given Coefficient of Transmissibility





9) Discharge in Confined Aquifer with Base 10

 $oxed{Q} = rac{2.72 \cdot \mathrm{K_w} \cdot \mathrm{b_w} \cdot (\mathrm{H_i} - \mathrm{h_w})}{\log \left(\left(rac{\mathrm{R_w}}{\mathrm{r}}
ight), 10
ight)}$

Open Calculator 🗗

 $\boxed{ 1.029428 \text{m}^3/\text{s} = \frac{2.72 \cdot 1125 \text{cm/s} \cdot 14.15 \text{m} \cdot (2.48 \text{m} - 2.44 \text{m})}{\log \left(\left(\frac{8.6 \text{m}}{7.5 \text{m}} \right), 10 \right)} }$

10) Discharge in Confined Aquifer with Base 10 given Coefficient of Transmissibility

 $\mathbf{Q}_{\mathrm{c}} = rac{2.72 \cdot \mathrm{T_w} \cdot (\mathrm{H_i} - \mathrm{h_w})}{\mathrm{log} \Big(\Big(rac{\mathrm{R_w}}{\mathrm{r}} \Big), 10 \Big)}$

Open Calculator

Aquifer Thickness **G**

11) Aquifer Thickness from Impermeable Layer given Coefficient of Transmissibility

 $\mathbf{K} \mathbf{H}_{\mathrm{i}} = \mathbf{h}_{\mathrm{w}} + \left(rac{\mathrm{Q} \cdot \mathrm{log}\left(\left(rac{\mathrm{R}_{\mathrm{w}}}{\mathrm{r}}
ight), e
ight)}{2 \cdot \pi \cdot \mathrm{T}_{\mathrm{w}}}
ight)$

$$\boxed{2.483663 \mathrm{m} = 2.44 \mathrm{m} + \left(\frac{1.01 \mathrm{m}^3/\mathrm{s} \cdot \log\left(\left(\frac{8.6 \mathrm{m}}{7.5 \mathrm{m}}\right), e\right)}{2 \cdot \pi \cdot 26.9 \mathrm{m}^2/\mathrm{s}}\right)}$$



12) Aquifer Thickness from Impermeable Layer given Coefficient of Transmissibility with Base 10

 $\mathbf{H}_{\mathrm{i}} = \mathrm{h_{w}} + \left(rac{\mathrm{Q} \cdot \mathrm{log}\left(\left(rac{\mathrm{R_{w}}}{\mathrm{r}}
ight), 10
ight)}{2.72 \cdot \mathrm{T_{w}}}
ight)$

Open Calculator

 $oxed{ex} \left[2.672243 \mathrm{m} = 2.44 \mathrm{m} + \left(rac{1.01 \mathrm{m}^3 / \mathrm{s} \cdot \mathrm{log} \left(\left(rac{8.6 \mathrm{m}}{7.5 \mathrm{m}}
ight), 10
ight)}{2.72 \cdot 26.9 \mathrm{m}^2 / \mathrm{s}}
ight)$

13) Aquifer Thickness from Impermeable Layer given Discharge in Confined Aquifer

 $\mathbf{H}_{\mathrm{i}} = \mathrm{h}_{\mathrm{w}} + \left(rac{\mathrm{Q} \cdot \mathrm{log}\left(\left(rac{\mathrm{R}_{\mathrm{w}}}{\mathrm{r}}
ight), e
ight)}{2 \cdot \pi \cdot \mathrm{K}_{\mathrm{w}} \cdot \mathrm{b}_{\mathrm{w}}}
ight)$

$$= 2.447378 \mathrm{m} = 2.44 \mathrm{m} + \left(\frac{1.01 \mathrm{m}^3/\mathrm{s} \cdot \log \left(\left(\frac{8.6 \mathrm{m}}{7.5 \mathrm{m}} \right), e \right)}{2 \cdot \pi \cdot 1125 \mathrm{cm/s} \cdot 14.15 \mathrm{m}} \right)$$



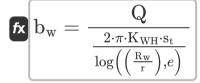
14) Aquifer Thickness from Impermeable Layer given Discharge in Confined Aquifer with Base 10

 $\mathbf{H}_{\mathrm{i}} = \mathrm{h}_{\mathrm{w}} + \left(rac{\mathrm{Q} \cdot \mathrm{log}\left(\left(rac{\mathrm{R}_{\mathrm{w}}}{\mathrm{r}}
ight), 10
ight)}{2.72 \cdot \mathrm{K}_{\mathrm{w}} \cdot \mathrm{b}_{\mathrm{w}}}
ight)$

Open Calculator

 $= 2.479245 \text{m} = 2.44 \text{m} + \left(\frac{1.01 \text{m}^3/\text{s} \cdot \log\left(\left(\frac{8.6 \text{m}}{7.5 \text{m}}\right), 10\right)}{2.72 \cdot 1125 \text{cm/s} \cdot 14.15 \text{m}} \right)$

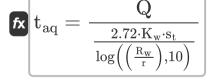
15) Aquifer Thickness given Confined Aquifer Discharge



Open Calculator

 $= \frac{1.01 \text{m}^3/\text{s}}{\frac{2 \cdot \pi \cdot 10.00 \text{cm/s} \cdot 0.83 \text{m}}{\log((\frac{8.6 \text{m}}{7.5 \text{m}}), e)} }$

16) Aquifer Thickness given Confined Aquifer Discharge with Base 10 🚰





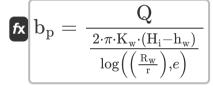
17) Aquifer Thickness given Depth of Water in Two Wells

 $\mathbf{b}_{\mathrm{p}} = rac{\mathrm{Q}}{rac{2.72\cdot\mathrm{K_w\cdot(h_2-h_1)}}{\log\left(\left(rac{\mathrm{r_2}}{\mathrm{r_1}}
ight),10
ight)}}$

Open Calculator 🗗

$$2.361511 m = \frac{1.01 m^3/s}{\frac{2.72 \cdot 1125 cm/s \cdot (17.8644 m - 17.85 m)}{\log((\frac{10.0 m}{1.07 m}), 10)} }$$

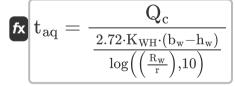
18) Thickness of Confined Aquifer given Discharge in Confined Aquifer



Open Calculator

$$= \frac{1.01 \text{m}^3/\text{s}}{\frac{2 \cdot \pi \cdot 1125 \text{cm/s} \cdot (2.48 \text{m} - 2.44 \text{m})}{\log((\frac{8.6 \text{m}}{7.5 \text{m}}), e)} }$$

19) Thickness of Confined Aquifer given Discharge in Confined Aquifer with Base 10

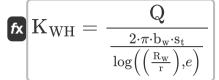






Coefficient of Permeability 🗗

20) Coefficient of Permeability given Confined Aquifer Discharge



Open Calculator

 $= 10.00076 \text{cm/s} = \frac{1.01 \text{m}^3/\text{s}}{\frac{2 \cdot \pi \cdot 14.15 \text{m} \cdot 0.83 \text{m}}{\log\left(\left(\frac{8.6 \text{m}}{7.5 \text{m}}\right), e\right)} }$

21) Coefficient of Permeability given Confined Aquifer Discharge with Base

$ext{K}_{ ext{WH}} = rac{ ext{Q}}{rac{2.72 \cdot ext{b}_{ ext{w}} \cdot ext{S}_{ ext{tw}}}{ ext{log}\left(\left(rac{ ext{Rw}}{ ext{r}} ight),10 ight)}}$

Open Calculator

22) Coefficient of Permeability given Depth of Water in Two Wells

$$\mathbf{K}_{\mathrm{w}} = rac{\mathrm{Q}}{rac{2.72 \cdot \mathrm{b_p} \cdot (\mathrm{h_2 - h_1})}{\mathrm{log}\left(\left(rac{\mathrm{r_2}}{\mathrm{r_1}}
ight), 10
ight)}}$$

Open Calculator 🗗





Coefficient of Transmissibility

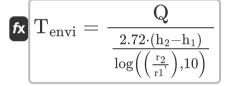
23) Coefficient of Transmissibility given Confined Aquifer Discharge

$$ext{T}_{ ext{envi}} = rac{ ext{Q}}{rac{2 \cdot \pi \cdot ext{s}_{ ext{t}}}{\log \left(\left(rac{ ext{Rw}}{ ext{r}}
ight), e
ight)}}$$

Open Calculator

$$= \frac{1.01 \text{m}^3/\text{s}}{\frac{2 \cdot \pi \cdot 0.83 \text{m}}{\log\left(\left(\frac{8.6 \text{m}}{7.5 \text{m}}\right), e\right)} }$$

24) Coefficient of Transmissibility given Depth of Water in Two Wells



Open Calculator

$$= 2.578636 \text{m}^2/\text{s} = \frac{1.01 \text{m}^3/\text{s}}{\frac{2.72 \cdot (17.8644 \text{m} - 17.85 \text{m})}{\log((\frac{10.0 \text{m}}{0.00000001 \text{m}}), 10)}}$$

25) Coefficient of Transmissibility given Discharge in Confined Aquifer with Base 10

$$ext{T}_{ ext{envi}} = rac{ ext{Q}}{rac{2.72 \cdot (ext{b}_{ ext{w}} - ext{h}_{ ext{well}})}{ ext{log}\left(\left(rac{ ext{R}_{ ext{w}}}{ ext{r}}
ight), 10
ight)}}$$





Depth of Water in Well

26) Depth of Water in 1st Well given Coefficient of Transmissibility

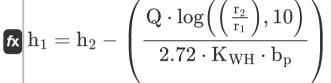


 $\mathbf{h}_1 = \mathbf{h}_2 - \left(rac{\mathrm{Q} \cdot \log \left(\left(rac{\mathrm{r}_2}{\mathrm{r}_1}
ight), 10
ight)}{2.72 \cdot \mathrm{T}_{\mathrm{envi}}}
ight)$

Open Calculator

$$\boxed{ 17.60936 \mathrm{m} = 17.8644 \mathrm{m} - \left(\frac{1.01 \mathrm{m}^3/\mathrm{s} \cdot \log \left(\left(\frac{10.0 \mathrm{m}}{1.07 \mathrm{m}} \right), 10 \right)}{2.72 \cdot 1.5 \mathrm{m}^2/\mathrm{s}} \right) }$$

27) Depth of Water in 1st Well given Confined Aquifer Discharge



$$= 16.24336 \mathrm{m} = 17.8644 \mathrm{m} - \left(\frac{1.01 \mathrm{m}^3/\mathrm{s} \cdot \log \left(\left(\frac{10.0 \mathrm{m}}{1.07 \mathrm{m}} \right), 10 \right)}{2.72 \cdot 10.00 \mathrm{cm/s} \cdot 2.36 \mathrm{m}} \right)$$



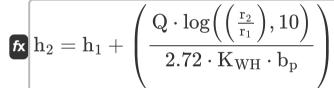
28) Depth of Water in 2nd Well given Coefficient of Transmissibility

 $\mathbf{h}_2 = \mathbf{h}_1 + \left(rac{\mathbf{Q} \cdot \log\left(\left(rac{\mathbf{r}_2}{\mathbf{r}_1}
ight), 10
ight)}{2.72 \cdot \mathrm{T}_{\mathrm{envi}}}
ight)$

Open Calculator 🚰

 $\boxed{ 18.10504 \mathrm{m} = 17.85 \mathrm{m} + \left(\frac{1.01 \mathrm{m}^3 / \mathrm{s} \cdot \log \left(\left(\frac{10.0 \mathrm{m}}{1.07 \mathrm{m}} \right), 10 \right)}{2.72 \cdot 1.5 \mathrm{m}^2 / \mathrm{s}} \right) }$

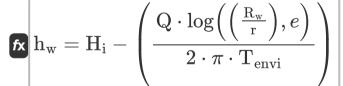
29) Depth of Water in 2nd Well given Confined Aquifer Discharge



Open Calculator

 $\boxed{ 19.47104 \mathrm{m} = 17.85 \mathrm{m} + \left(\frac{1.01 \mathrm{m}^3 / \mathrm{s} \cdot \log \left(\left(\frac{10.0 \mathrm{m}}{1.07 \mathrm{m}} \right), 10 \right)}{2.72 \cdot 10.00 \mathrm{cm} / \mathrm{s} \cdot 2.36 \mathrm{m}} \right) }$

30) Depth of Water in Well given Coefficient of Transmissibility 🗗



Open Calculator 🗗

 $\boxed{1.696974\mathrm{m} = 2.48\mathrm{m} - \left(\frac{1.01\mathrm{m}^3/\mathrm{s} \cdot \log\left(\left(\frac{8.6\mathrm{m}}{7.5\mathrm{m}}\right), e\right)}{2 \cdot \pi \cdot 1.5\mathrm{m}^2/\mathrm{s}}\right)}$



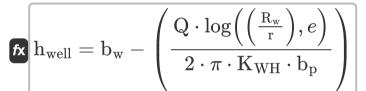
31) Depth of Water in Well given Coefficient of Transmissibility with Base

 $\mathbf{h}_{\mathrm{well}} = \mathbf{b}_{\mathrm{w}} - \left(rac{\mathbf{Q} \cdot \log\left(\left(rac{\mathbf{R}_{\mathrm{w}}}{r}
ight), 10
ight)}{2.72 \cdot \mathrm{T}_{\mathrm{envi}}}
ight)$

Open Calculator

 $\boxed{ 9.985116 m = 14.15 m - \left(\frac{1.01 m^3/s \cdot \log \left(\left(\frac{8.6 m}{7.5 m} \right), 10 \right)}{2.72 \cdot 1.5 m^2/s} \right) }$

32) Depth of Water in Well given Discharge in Confined Aquifer



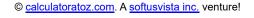
Open Calculator 🗗

 $= 2.173138 \text{m} = 14.15 \text{m} - \left(\frac{1.01 \text{m}^3/\text{s} \cdot \log \left(\left(\frac{8.6 \text{m}}{7.5 \text{m}} \right), e \right)}{2 \cdot \pi \cdot 10.00 \text{cm/s} \cdot 2.36 \text{m}} \right)$

33) Depth of Water in Well given Discharge in Confined Aquifer with Base 10

$$\mathbf{f}_{\mathrm{well}} = b_{\mathrm{w}} - \left(rac{\mathrm{Q} \cdot \mathrm{log}\left(\left(rac{\mathrm{R}_{\mathrm{w}}}{\mathrm{r}}
ight), 10
ight)}{2.72 \cdot \mathrm{K}_{\mathrm{w}} \cdot b_{\mathrm{p}}}
ight)$$

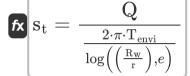






Drawdown at well

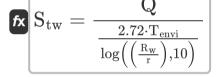
34) Drawdown at Well given Coefficient of Transmissibility



Open Calculator

$$= \frac{1.01 \text{m}^3/\text{s}}{\frac{2 \cdot \pi \cdot 1.5 \text{m}^2/\text{s}}{\log((\frac{8.6 \text{m}}{7.5 \text{m}}), e)} }$$

35) Drawdown at Well given Coefficient of Transmissibility with Base 10



Open Calculator 🗗

$$egin{align*} egin{align*} egin{align*} egin{align*} egin{align*} & 1.01 \mathrm{m}^3/\mathrm{s} \ \hline & rac{2.72 \cdot 1.5 \mathrm{m}^2/\mathrm{s}}{\log \left(\left(rac{8.6 \mathrm{m}}{7.5 \mathrm{m}}
ight), 10
ight)} \end{aligned}$$

36) Drawdown at Well given Confined Aquifer Discharge

$$\mathbf{f_{x}} \mathbf{S}_{\mathrm{tw}} = rac{\mathbf{Q}}{rac{2 \cdot \pi \cdot \mathbf{K}_{\mathrm{WH}} \cdot \mathbf{b}_{\mathrm{p}}}{\log\left(\left(rac{\mathbf{R}_{\mathrm{w}}}{\mathbf{r}}
ight), e
ight)}}$$

$$= \frac{1.01 \text{m}^3/\text{s}}{\frac{2 \cdot \pi \cdot 10.00 \text{cm/s} \cdot 2.36 \text{m}}{\log \left(\left(\frac{8.6 \text{m}}{7.5 \text{m}} \right), e \right)} }$$





37) Drawdown at Well given Confined Aquifer Discharge with Base 10 🛂



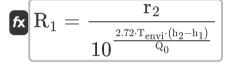
Open Calculator 🗗

$$S_{\mathrm{tw}} = rac{\mathrm{Q}}{rac{2.72 \cdot \mathrm{K}_{\mathrm{WH}} \cdot \mathrm{b}_{\mathrm{w}}}{\log\left(\left(rac{\mathrm{R}_{\mathrm{w}}}{\mathrm{r}}
ight), 10
ight)}}$$

$$\boxed{4.415072 m = \frac{1.01 m^3/s}{\frac{2.72 \cdot 10.00 cm/s \cdot 14.15 m}{\log\left(\left(\frac{8.6 m}{7.5 m}\right), 10\right)}}}$$

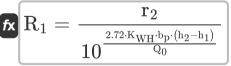
Radial Distance and Radius of well

38) Radial Distance of Well 1 given Coefficient of Transmissibility and Discharge



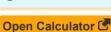
9.97298m = -

39) Radial Distance of Well 1 given Confined Aquifer Discharge 🗗



10

$$oxed{9.995744 m} = rac{10.0 m}{10^{rac{2.72 \cdot 10.00 cm/s \cdot 2.36 m \cdot (17.8644 m - 17.85 m)}{50 m^3/s}}}$$







40) Radial Distance of Well 2 given Coefficient of Transmissibility and Discharge

 $m_R=r_1\cdot 10^{rac{2.72\cdot T_{
m envi}\cdot (h_2-h_1)}{Q_0}}$

Open Calculator 🚰

41) Radial Distance of Well 2 given Confined Aquifer Discharge

 $m_R_2 = r_1 \cdot 10^{rac{2.72 \cdot K_{WH} \cdot b_p \cdot (h_2 - h_1)}{Q_0}}$

Open Calculator

 $extbf{ex} 1.070456 ext{m} = 1.07 ext{m} \cdot 10^{rac{2.72 \cdot 10.00 ext{cm/s} \cdot 2.36 ext{m} \cdot (17.8644 ext{m} - 17.85 ext{m})}{50 ext{m}^3/ ext{s}}$

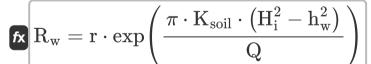
42) Radius of Influence given Discharge and Length of Strainer

 $m R_w = r \cdot 10^{rac{2.72 \cdot K_{WH} \cdot s_t \cdot \left(L + \left(rac{s_t}{2}
ight)
ight)}{Q}}$

Open Calculator 🗗

ex $25.99403 \mathrm{m} = 7.5 \mathrm{m} \cdot 10^{rac{2.72 \cdot 10.00 \mathrm{cm/s} \cdot 0.83 \mathrm{m} \cdot \left(2 \mathrm{m} + \left(rac{0.83 \mathrm{m}}{2}
ight)
ight)}{1.01 \mathrm{m}^3/\mathrm{s}}}$

43) Radius of Influence given Discharge in Unconfined Aquifer



Open Calculator 🗗

 $= 7.500046 \text{m} = 7.5 \text{m} \cdot \exp \left(\frac{\pi \cdot 0.001 \text{cm/s} \cdot \left((2.48 \text{m})^2 - (2.44 \text{m})^2 \right)}{1.01 \text{m}^3 / \text{s}} \right)$





44) Radius of Influence given Discharge in Unconfined Aquifer with Base

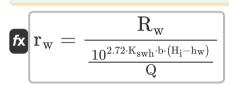
10

$$m R_w = r \cdot 10^{rac{1.36 \cdot K_{soil} \cdot \left(H_i^2 - h_w^2
ight)}{Q}}$$

Open Calculator 🗗

$$= 7.500046 \mathrm{m} = 7.5 \mathrm{m} \cdot 10^{\frac{1.36 \cdot 0.001 \mathrm{cm/s} \cdot \left((2.48 \mathrm{m})^2 - (2.44 \mathrm{m})^2 \right)}{1.01 \mathrm{m}^3/\mathrm{s}} }$$

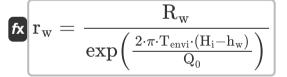
45) Radius of Well for Discharge in Confined Aquifer with Base 10



Open Calculator

$$= \frac{8.6 \text{m}}{\frac{10^{2.72 \cdot 0.0022 \cdot 3 \text{m} \cdot (2.48 \text{m} - 2.44 \text{m})}}{1.01 \text{m}^3/\text{s}}}$$

46) Radius of Well given Coefficient of Transmissibility



$$ext{ex} 8.535401 ext{m} = rac{8.6 ext{m}}{ ext{exp} \Big(rac{2 \cdot \pi \cdot 1.5 ext{m}^2/ ext{s} \cdot (2.48 ext{m} - 2.44 ext{m})}{50 ext{m}^3/ ext{s}} \Big)$$



47) Radius of Well given Coefficient of Transmissibility with Base 10



Open Calculator 2

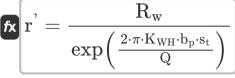
Open Calculator

Open Calculator 2

$$\mathbf{r}_{\mathrm{w}} = rac{\mathrm{R}_{\mathrm{w}}}{10^{rac{2.72 \cdot \mathrm{T}_{\mathrm{envi}} \cdot \left(\mathrm{H_{i}}-\mathrm{hw}
ight)}{\mathrm{Q}_{0}}}}$$

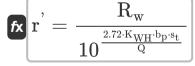
$$egin{align*} \mathbf{8.535608m} = rac{8.6 \mathrm{m}}{10^{rac{2.72 \cdot 1.5 \mathrm{m}^2/\mathrm{s} \cdot (2.48 \mathrm{m} - 2.44 \mathrm{m})}{50 \mathrm{m}^3/\mathrm{s}}} } \end{split}$$

48) Radius of Well given Confined Aquifer Discharge



$$=$$
 $2.542626 \mathrm{m} = rac{8.6 \mathrm{m}}{\exp \left(rac{2 \cdot \pi \cdot 10.00 \mathrm{cm/s} \cdot 2.36 \mathrm{m} \cdot 0.83 \mathrm{m}}{1.01 \mathrm{m}^3/\mathrm{s}}
ight)}$

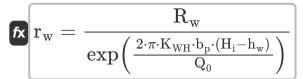
49) Radius of Well given Confined Aquifer Discharge with Base 10



$$oxed{ex} 2.552584 \mathrm{m} = rac{8.6 \mathrm{m}}{10^{rac{2.72 \cdot 10.00 \mathrm{cm/s} \cdot 2.36 \mathrm{m} \cdot 0.83 \mathrm{m}}{1.01 \mathrm{m}^2/\mathrm{s}}}}$$



50) Radius of Well given Discharge in Confined Aquifer



Open Calculator

$$=$$
 $8.589804 \mathrm{m} = rac{8.6 \mathrm{m}}{\exp \left(rac{2 \cdot \pi \cdot 10.00 \mathrm{cm/s} \cdot 2.36 \mathrm{m} \cdot (2.48 \mathrm{m} - 2.44 \mathrm{m})}{50 \mathrm{m}^3 / \mathrm{s}}
ight)}$

51) Radius of Well given Drawdown at Well

$$\mathbf{r}^{"} = rac{\mathrm{R_w}}{\mathrm{exp}\Big(rac{2\cdot\pi\cdot\mathrm{T_{envi}\cdot\mathrm{s_t}}}{\mathrm{Q}}\Big)}$$

Open Calculator

$$ext{ex} \left[0.003723 ext{m} = rac{8.6 ext{m}}{ ext{exp} \left(rac{2 \cdot \pi \cdot 1.5 ext{m}^2 / ext{s} \cdot 0.83 ext{m}}{1.01 ext{m}^3 / ext{s}}
ight)$$

52) Radius of Well given Drawdown at Well with Base 10

$$\mathbf{r}^{"}=rac{\mathrm{R_{w}}}{10^{rac{2.72\cdot\mathrm{T_{envi}\cdot\mathrm{st}}}{\mathrm{Q}}}}$$



Radius of Influence 2

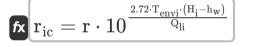
53) Radius of Influence given Coefficient of Transmissibility

$$\mathbf{r}_{
m ic} = \mathbf{r} \cdot \expigg(rac{2 \cdot \pi \cdot \mathrm{T}_{
m envi} \cdot (\mathrm{H_i} - \mathrm{h_w})}{\mathrm{Q}_0}igg)$$

Open Calculator

 $\boxed{ 7.556762 m = 7.5 m \cdot \exp \bigg(\frac{2 \cdot \pi \cdot 1.5 m^2 / s \cdot (2.48 m - 2.44 m)}{50 m^3 / s} \bigg) }$

54) Radius of Influence given Coefficient of Transmissibility with Base 10



Open Calculator

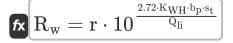
ex $7.690264 \mathrm{m} = 7.5 \mathrm{m} \cdot 10^{rac{2.72 \cdot 1.5 \mathrm{m}^2/\mathrm{s} \cdot (2.48 \mathrm{m} - 2.44 \mathrm{m})}{15 \mathrm{m}^2/\mathrm{s}}}$

55) Radius of Influence given Confined Aquifer Discharge

$$R_{
m w} = r \cdot \exp \left(rac{2 \cdot \pi \cdot K_{
m WH} \cdot b_{
m p} \cdot s_{
m t}}{Q_{
m li}}
ight)$$

Open Calculator

56) Radius of Influence given Confined Aquifer Discharge with Base 10



Open Calculator

 $extstyle = 8.139183 ext{m} = 7.5 ext{m} \cdot 10^{rac{2.72 \cdot 10.00 ext{cm/s} \cdot 2.36 ext{m} \cdot 0.83 ext{m}}{15 ext{m}'/ ext{s}}}$







57) Radius of Influence given Discharge in Confined Aquifer 💪

 $R_{\mathrm{id}} = r \cdot \mathrm{exp} igg(rac{2 \cdot \pi \cdot \mathrm{K}_{\mathrm{WH}} \cdot \mathrm{b}_{\mathrm{p}} \cdot (\mathrm{H_{i}} - \mathrm{h_{w}})}{\mathrm{Q}_{\mathrm{o}}} igg)$

Open Calculator

ex

 $7.508902 \mathrm{m} = 7.5 \mathrm{m} \cdot \mathrm{exp} igg(rac{2 \cdot \pi \cdot 10.00 \mathrm{cm/s} \cdot 2.36 \mathrm{m} \cdot (2.48 \mathrm{m} - 2.44 \mathrm{m})}{50 \mathrm{m}^{\scriptscriptstyle 3}/\mathrm{s}} igg)$

58) Radius of Influence given Discharge in Confined Aquifer with Base 10

 $m R_{id} = r \cdot 10^{rac{2.72 \cdot K_{
m WH} \cdot b_{
m p} \cdot (H_i - h_{
m w})}{Q_0}}$

Open Calculator

59) Radius of Influence given Drawdown at Well 🛂

 $m R_{iw} = r \cdot expigg(rac{2 \cdot \pi \cdot T_{
m envi} \cdot s_{
m t}}{Q_{
m li}}igg)$

Open Calculator

ex $12.6342 \text{m} = 7.5 \text{m} \cdot \exp\left(\frac{2 \cdot \pi \cdot 1.5 \text{m}^2/\text{s} \cdot 0.83 \text{m}}{15 \text{m}^3/\text{s}}\right)$

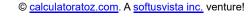
60) Radius of Influence given Drawdown at Well with Base 10 🗗

 $R_{iw} = r \cdot 10^{\frac{2.72 \cdot T_{envi} \cdot s_t}{Q_{li}}}$

Open Calculator

ex $12.61308 \mathrm{m} = 7.5 \mathrm{m} \cdot 10^{rac{2.72 \cdot 1.5 \mathrm{m}^2/\mathrm{s} \cdot 0.83 \mathrm{m}}{15 \mathrm{m}^2/\mathrm{s}}}$







Variables Used

- **b** Thickness of Aquifer (*Meter*)
- **b**_p Aquifer Thickness During Pumping (*Meter*)
- **b**_w Aquifer Thickness (Meter)
- h₁ Depth of Water 1 (Meter)
- **h**₂ Depth of Water 2 (Meter)
- **H**i Initial Aquifer Thickness (*Meter*)
- h_w Depth of Water (Meter)
- h_{well} Depth of Water in Well (Meter)
- K_{soil} Coefficient of Permeability of Soil Particle (Centimeter per Second)
- K_{swh} Standard Coefficient of Permeability
- **K**_w Coefficient of Permeability (Centimeter per Second)
- K_{WH} Coefficient of Permeability in Well Hydraulics (Centimeter per Second)
- L Length of Strainer (Meter)
- **Q** Discharge (Cubic Meter per Second)
- Qn Discharge at Time t=0 (Cubic Meter per Second)
- Q_c Discharge in Confined Aquifer (Cubic Meter per Second)
- Q_{ct} Discharge given Coefficient of Transmissibility (Cubic Meter per Second)
- Q_{Ii} Discharge of Liquid (Cubic Meter per Second)
- Qcaq Confined Aquifer Discharge given Depth of Water (Cubic Meter per Second)





- r Radius of Well (Meter)
- r₁ Radial Distance at Observation Well 1 (Meter)
- R₁ Radial Distance 1 (Meter)
- **r**₂ Radial Distance at Observation Well 2 (*Meter*)
- R₂ Radial Distance at Well 2 (Meter)
- r_{ic} Radius of Influence(Coeffi. of Transmissibility) (Meter)
- Rid Radius of Influence given Discharge (Meter)
- R_{iw} Radius of Influence given Drawdown at Well (Meter)
- r_w Radius of Well given Discharge (Meter)
- R_w Radius of Influence (Meter)
- r Radius of Well in Eviron. Engin. (Meter)
- r" Radius of Well in Well Hydraulics (Meter)
- r1 Radial Distance at Well 1 (Meter)
- St Total Drawdown (Meter)
- S_{tw} Total Drawdown in Well (Meter)
- t_{aq} Aquifer Thickness given Confined Aquifer Discharge (Meter)
- Tenvi Coefficient of Transmissibility (Square Meter per Second)
- T_w Coefficient of Transmissibility in Enviro. Eng. (Square Meter per Second)





Constants, Functions, Measurements used

- Constant: pi, 3.14159265358979323846264338327950288
 Archimedes' constant
- Constant: e, 2.71828182845904523536028747135266249
 Napier's constant
- Function: exp, exp(Number)

 n an exponential function, the value of the function changes by a constant factor for every unit change in the independent variable.
- Function: log, log(Base, Number)
 Logarithmic function is an inverse function to exponentiation.
- Measurement: Length in Meter (m)
 Length Unit Conversion
- Measurement: Speed in Centimeter per Second (cm/s)
 Speed 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

Confined Aquifer Formulas

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