

Superposition

<https://www.youtube.com/user/MartinRHendriks/videos>

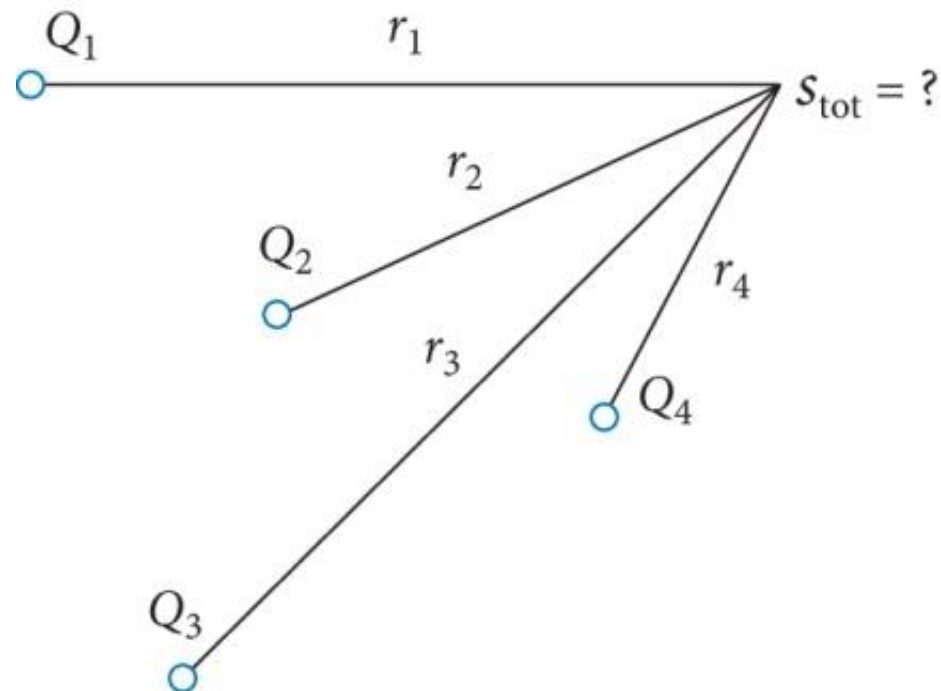
$$s = h - h_R = \frac{Q_0}{2\pi K \bar{D}} \ln \frac{r}{R}$$

$s < 0$ for a pumping well ($Q_0 > 0$)

$s > 0$ for a recharge well ($Q_0 < 0$)

$$s_{\text{tot}} = s_1 + s_2 + s_3 + s_4$$

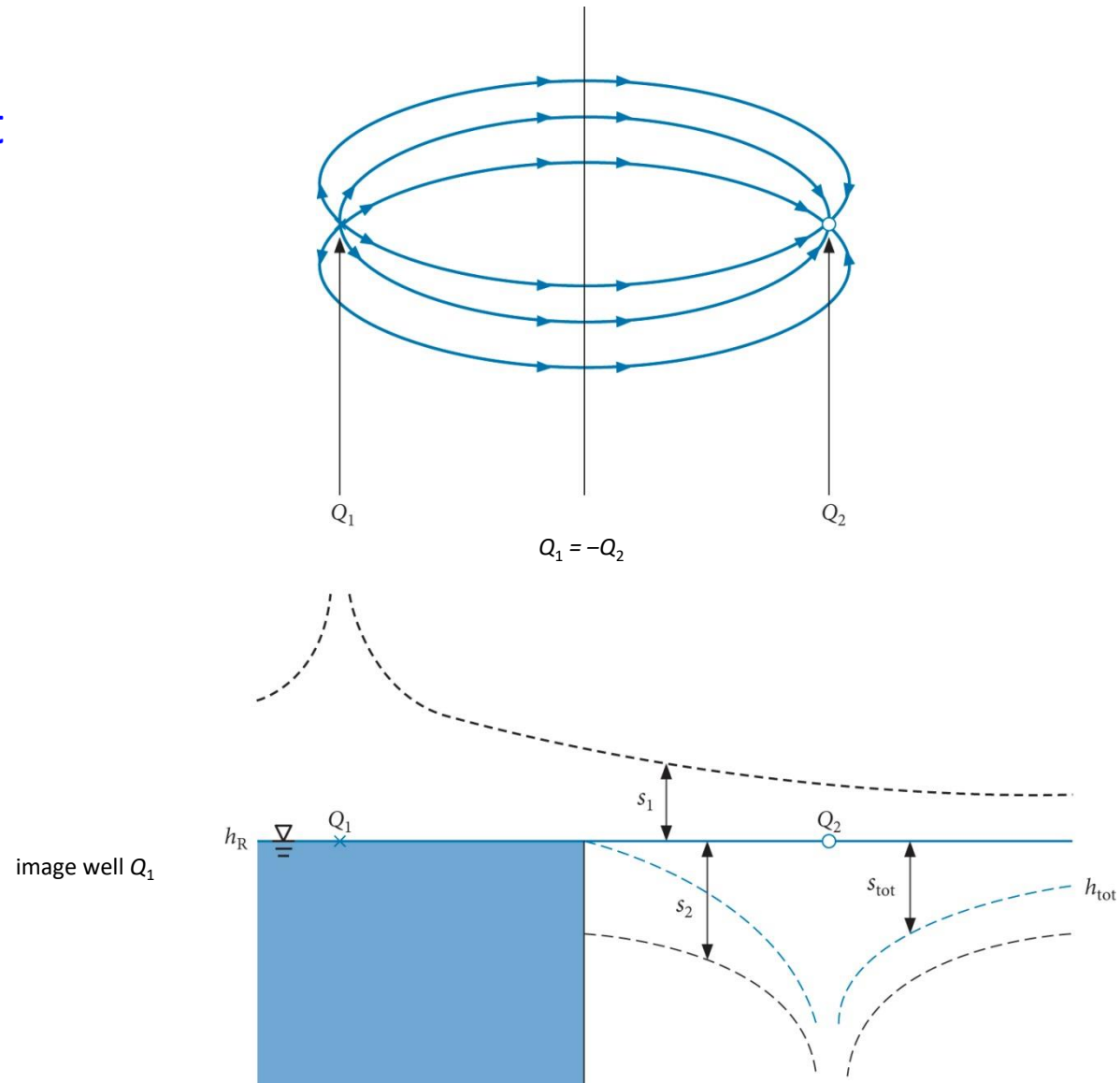
$$h = h_R + s_{\text{tot}}$$



Open-water linear boundary

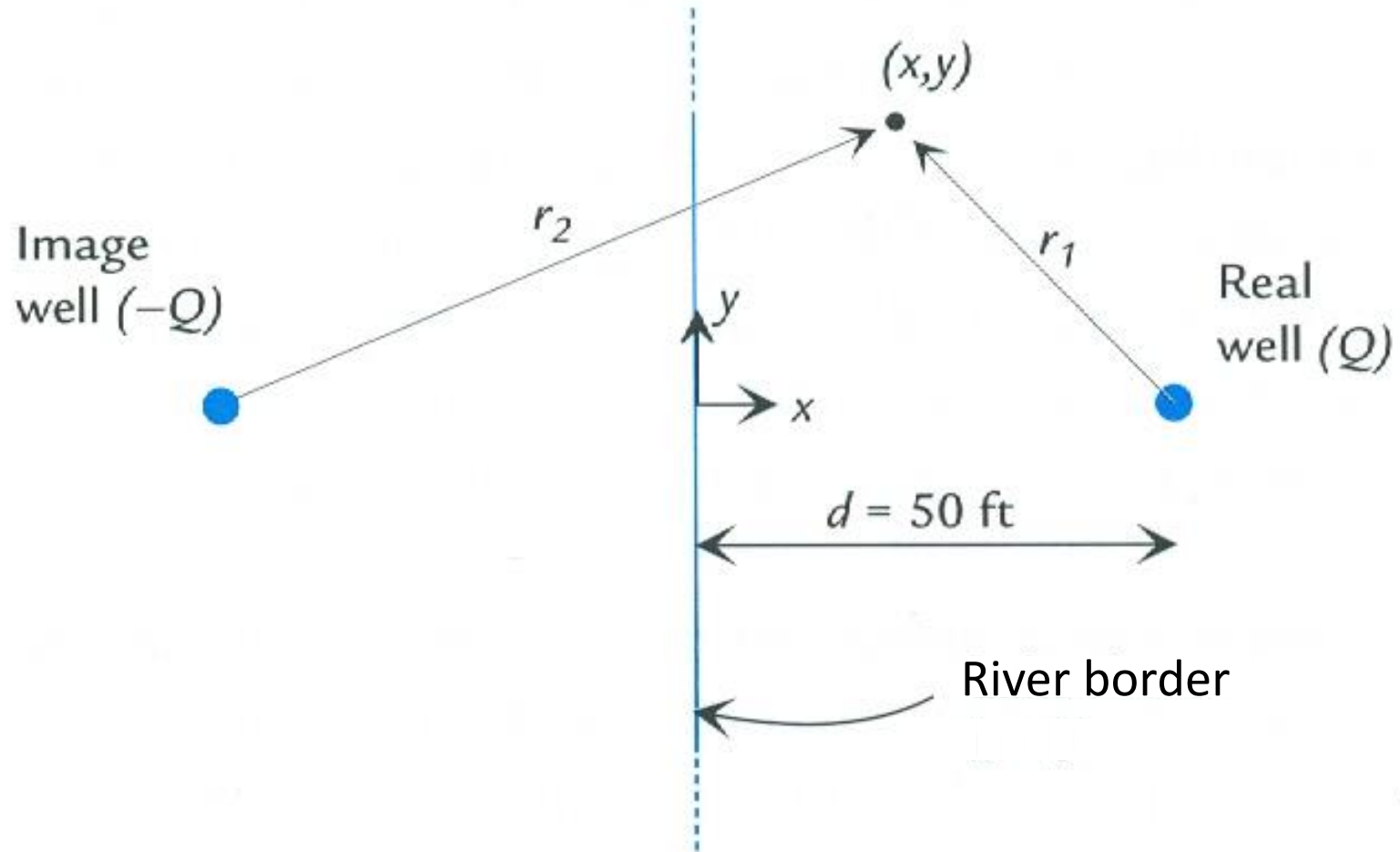
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Dirichlet



Open-water linear boundary

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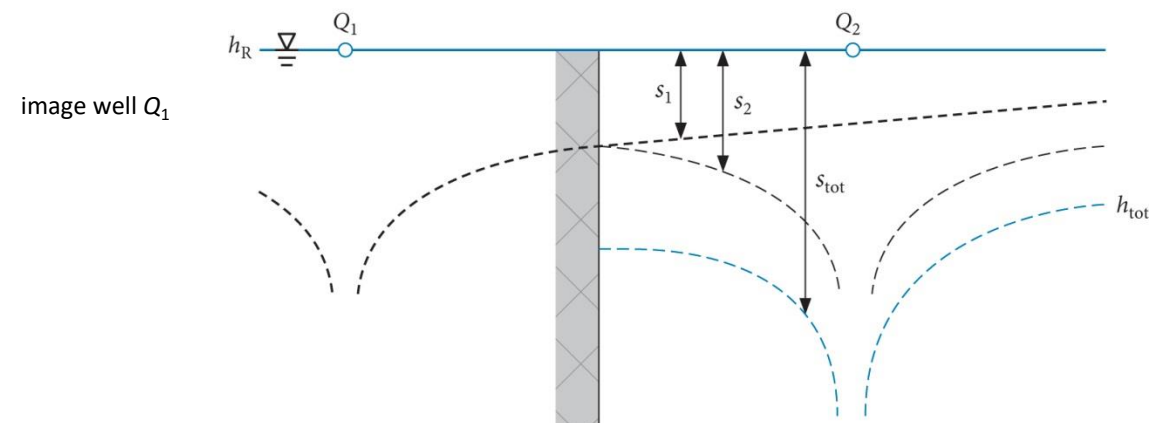
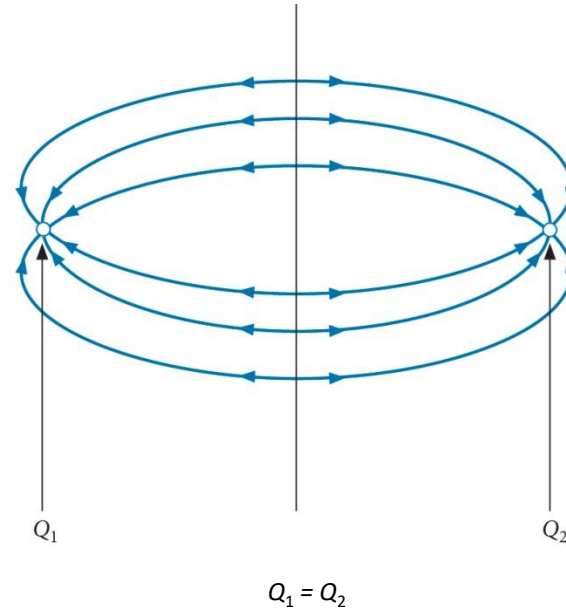


After Fitts (2002)

No-flow linear boundary

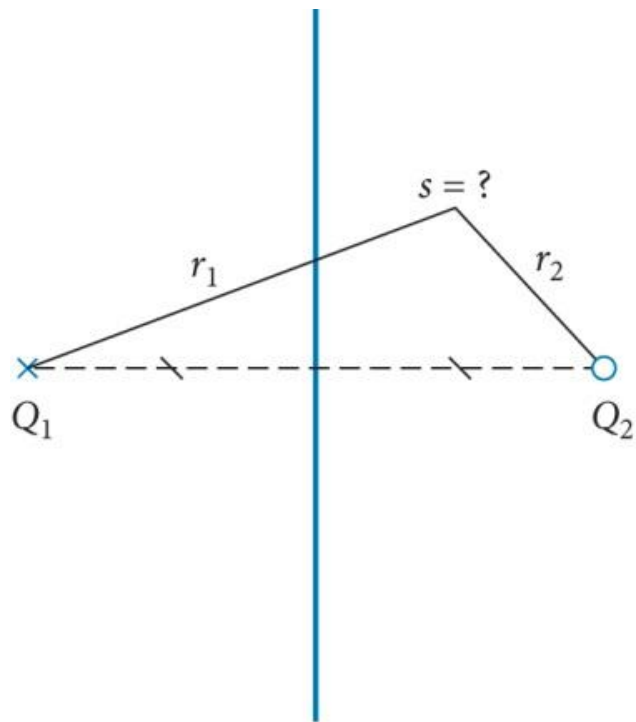
<https://www.youtube.com/user/MartinRHendriks/videos>

Neumann



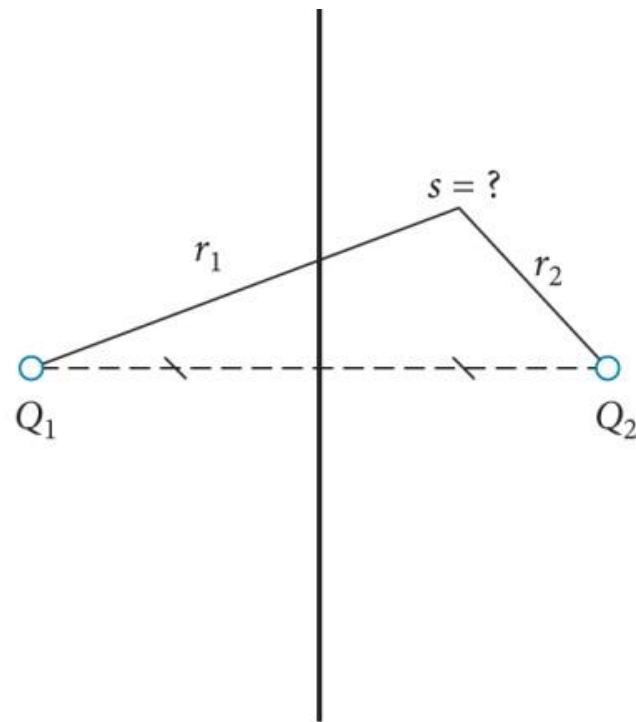
Linear boundaries

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(a)

Dirichlet



(b)

Neumann



References

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Fitts, C.R. (2002). Groundwater Science. Academic Press, Elsevier Science.

Hendriks, M.R. (2010). Introduction to Physical Hydrology. Oxford University Press.