7.1 Fundamental Equations of Groundwater Flow

Problem 1: K=17.28 m/d

Problem 2: K=20 m/d

Problem 3: K=17.12 m/d

7.2 Steady Groundwater Flow in Aquifers

Problem 1

a) -
b) v_1=0.64 m/d; v2=0.53 m/d
c) Q_R=1.6 m^2/d
d) t=4.7 years

Problem 2

a) d=310 m; h_{max}=20.47 m
b) Q_L=0.93 m^2/d; Q_R=2.07 m^2/d
c) t=22.85 years

Problem 3

a) -
b) -
c) -
d) φ_2=18.01 m, φ_3=17.99 m; Q_0=0.53 m^2/d

7.3 Steady Groundwater Flow to Wells

Problem 1

a) s_a=0.37 m
b) s_w=0.55 m
c) v_{ra}=-0.13 m/d; v_{rw}=-15.92 m/d
d) t=5161.6 years

Problem 2

a) T=301.35 m^2/d; K=15.07 m/d
b) R=2500 m

c) s_w=2.67m

Problem 3

a) K=12.22 m/d
b) Q0=551.24 m
c) s=1.88m

Problem 4

a) s_w=1.57m; s=0.47 m
b) R=6928 m; s_w=1.77m; s=0.67 m

7.4 Methods of superposition and image

Problem 1

i. Q_0=147.5 m^3/d
ii. Q_0=~~165.3~~ m^3/d

Problem 2

a) s=1.57 m

Problem 3

a) p=1938.46 m