GLY 4822, Assignment 9

1. Do Exercise 9.1 in Schwartz and Zhang, Fundamentals of Ground Water. For T =2500 m^2/d, S = 10^{-3}, and Q = 500 m^3/d, calculate the drawdowns in a confined aquifer at r = 10, 50, and 100 m at t = 150 minutes.

2. Do Exercise 15 in Chapter 8 of Fitts, Groundwater Science. Use both the templates (i.e., do it by hand) and Aqtesolve, which you can find on the web at http://www.aqtesolv.com/demo.htm. You can find a tutorial on Aqtesolve here: http://faculty.fiu.edu/~sukopm/GLY4822/UsingAqtesolve.pdf. Compare the results of the two methods.

The pumping rate is 1.3 m^3/min. The observation well is located 95 m away from the pumping well.

Time (minutes)	Drawdown (m)
1	0.15
2	0.22
4	0.3
8	0.39
15	0.46
30	0.55
60	0.63
120	0.72
240	0.81

The 'trick' to using this program is to put in '0' for the first pumping well period time; the time corresponds to the beginning of the period.

3. Derive the relationship between head h and depth z to the fresh/salt water interface. Begin by assuming that the pressures exerted by salt water and freshwater at the interfaces must be equal. The density of saltwater is 1.025 g/cm³.