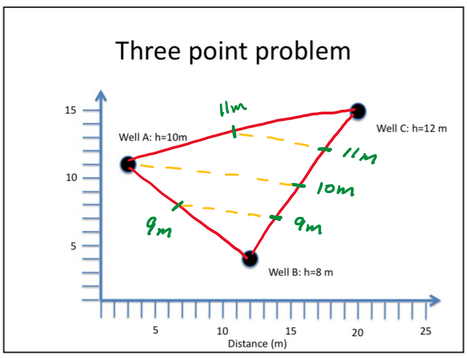
Three Point Problem

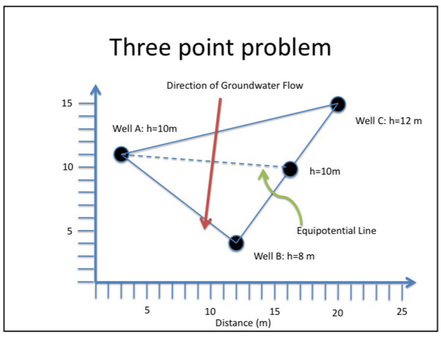
Saturday, February 29, 2020 8:09 AM

Example of the classic three point problem



Basic steps.

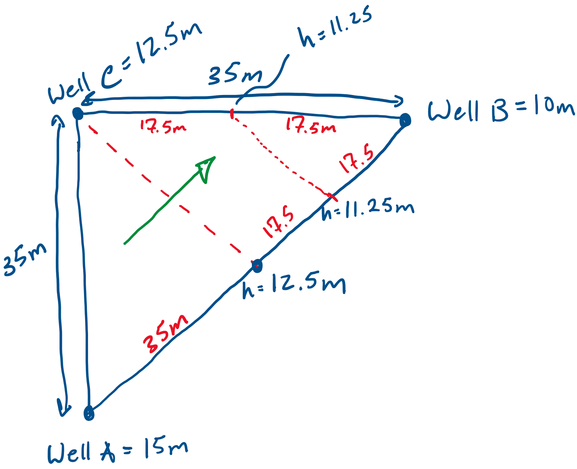
1. Determin head in wells
2. Draw lines connecting wells. (see red line above)
3. Try to find a common head between connecting lines (see green tick marks)
4. Draw equipotential lines (see yellow lines)



Foldable Aquifer Model Solution

A. Determine the direction of groundwater flow based on the water levels in wells A-C.

Well	Head
A	15m
B	10m
C	12.5m



B. Calculate the groundwater gradient across the unconfined aquifer.

$$\frac{h_2 - h_1}{\Delta s} = \frac{11.25 - 12.5m}{17.5} = -0.07\ m/m$$

C. Quantify the specific discharge (q) in the unconfined aquifer.

$$q = -K\frac{dh}{ds} \qquad K = 10^{-4}\ cm/sec = 10^{-6}\ m/sec$$

$$q = -(10^{-6}\ m/s)(-0.07\ m/m)$$

$$q = 7 \times 10^{-8}\ m/s$$