**More of a real-world contouring problem.**

The Smiths bought a home in a suburban development where the water supply was a shallow groundwater aquifer. A few months ago, they noticed a strange smell when they took showers – and their drinking water began to taste foul. Last week, while washing dishes, the Smiths thought they smelled gasoline in their kitchen.

The local TV news channel ran an investigative report on leakage from storage tanks at gas stations, and the Smiths suspected that this might be the cause of their problem. Because they’re filthy rich, they hired a groundwater consulting company to sample the aquifer and solve the issues. For reasons beyond imagining, you are in charge now that they have data.

The below map illustrates the Smith’s neighborhood, showing the location of their home (red triangle) and two local gas stations the Smiths suspect to be the source of their water problem.

You have data from the ‘hood, captured by technicians using state-of-the-art detection instruments to measure the amount of volatile compounds in the aquifer. The volatiles, benzene, toluene, ethylbenzene and xylene (BTEX), are all typical indicators of gas/gasoline/oil contamination. Concentrations above 50 parts per billion (ppb) are considered dangerous. The data are shown on the map as red numbers associated with black dots (the sample location).

Answer the below questions – after making a contour map using a 10ppm contour interval. Color code (pens, pencils, highlighters, etc) the map to show levels of potential danger: red for values above 50ppm, yellow for those areas of concern (30-50ppb).

1. Does either gas station have a leakage problem? Explain your conclusion
2. What direction does the local groundwater flow? How do you know?
3. Which homes will be the next to feel the effects of the gasoline leakage
4. What additional problems has your research discovered?

Hand in the printed/countoured/colored map and a page which answers the questions (typed). No need to turn in all the verbiage above the questions!

