

Not-quite-lakeside vacation: graphing

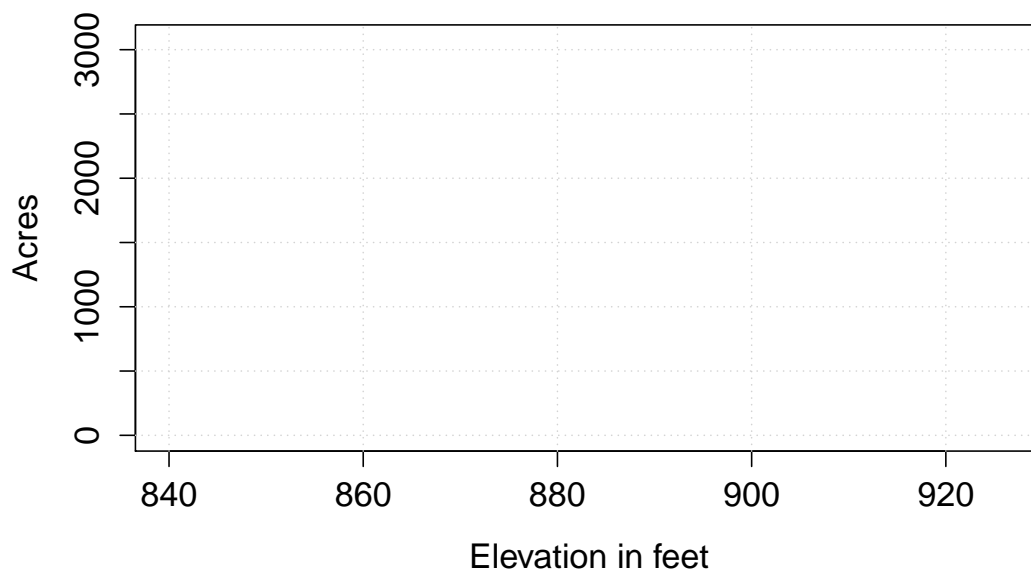
White Bear Lake in Minnesota has been shrinking: the level keeps going down, and beautiful lakeside homes are now swamp-side homes. What's happening?

Somewhere along its bottom, White Bear Lake is leaking water through the ground into a connected aquifer. In this series of worksheets, we'll explore some data about the shape and size of White Bear Lake and think about how much water it is losing each year. Here, we use rate of change to think about the shape of White Bear Lake.

The table below has some data about the elevation (in feet above sea level) and surface area (in acres) of White Bear Lake.

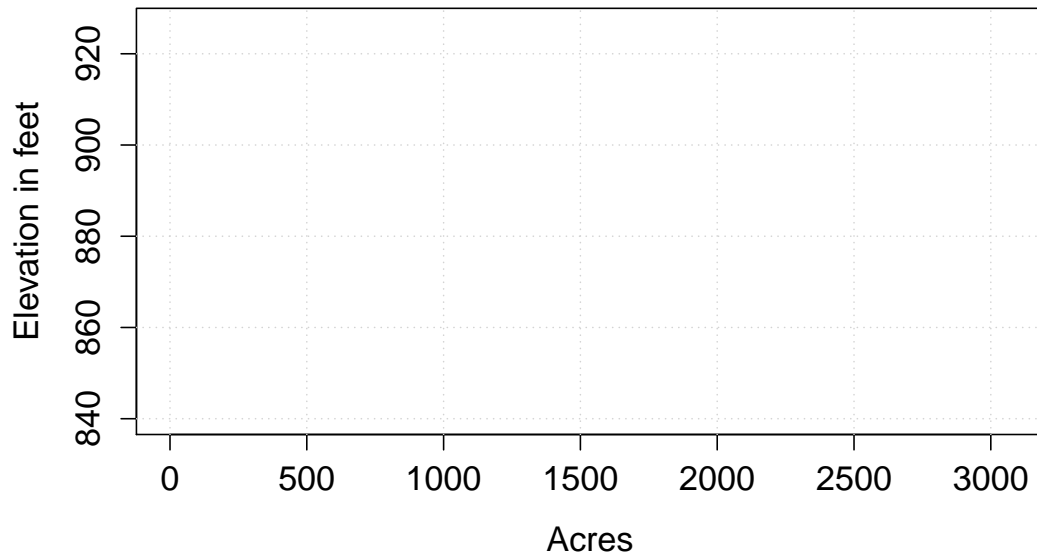
Elevation	840	843	853	863	873	883	893	903	913	923	925	926.5
Surface area	0.1	4.7	22.8	41.3	71.2	195	506.1	840.1	1454	2423	2735	3070

1. Graph surface area as a function of elevation. Where is the graph steepest? Where is it shallowest?



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- Graph elevation as a function of surface area. Where is the graph steepest? Where is it shallowest?



- You're asked to explain to a journalist why a small drop in surface elevation has had a big effect on the shoreline of White Bear Lake. Which graph would you use in your explanation, and why?