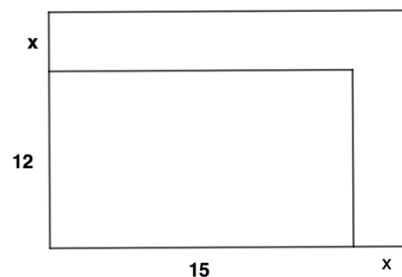


A Field of Rabbits

In a Year 12 class, students were asked to solve the following problem using GeoGebra:

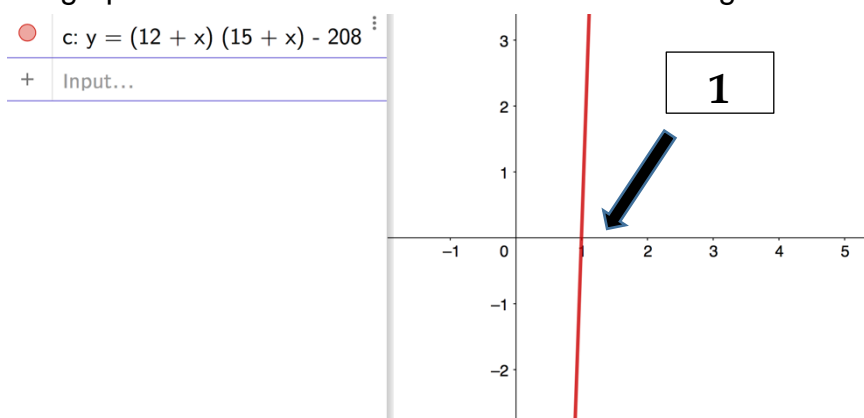
“A biologist is interested in the population of rabbits in a rectangular field with dimensions 12km by 15km. However, for the survey to be scientifically rigorous, they would need to investigate an area of 208km². The biologist extends both dimensions by x km. What is x ?”



Student A and Student B work on their computers next to each other. They agree that the area of the extended field is given by the equation $(12+x)(15+x) = 208$ and decide to solve the problem graphically. They rearrange the equation to form the function:

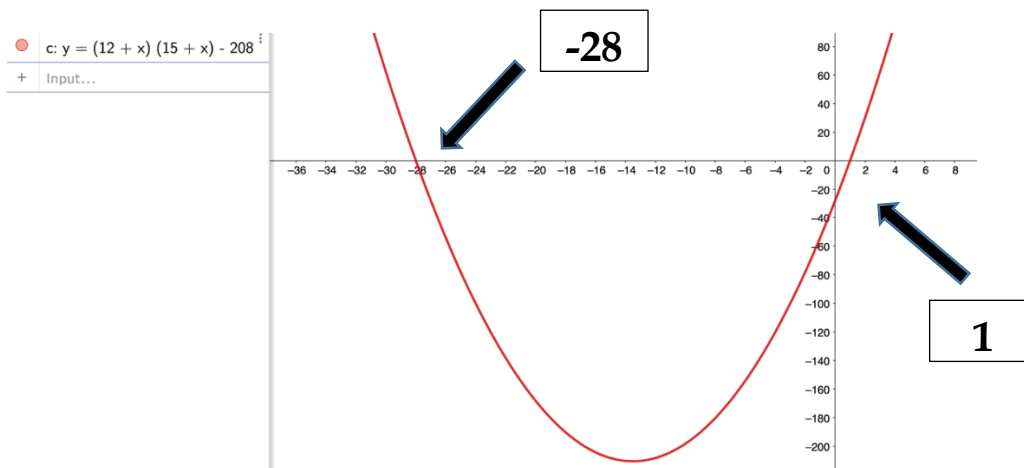
$$y = (12+x)(15+x) - 208$$

and make the graph in GeoGebra. Student A obtains the image below and says:



Student A: Okay, so that seems to be a line that crosses the x-axis at 1, so the solution is 1 and the dimensions of the rectangular field are 13 and 16. And 13 times 16 is 208. So, x is 1km.

Student B: But this is not a line, it is a curve and has two solutions. Look at my screen:



Questions:

- How would you solve this problem, with or without the use of digital technology?
- What is the aim of using this activity in class?
- What do you think are the issues in Student A's and Student B's responses?
- How would you respond to these students and the whole class, in particular bearing in mind the potentialities in the use of digital resources?