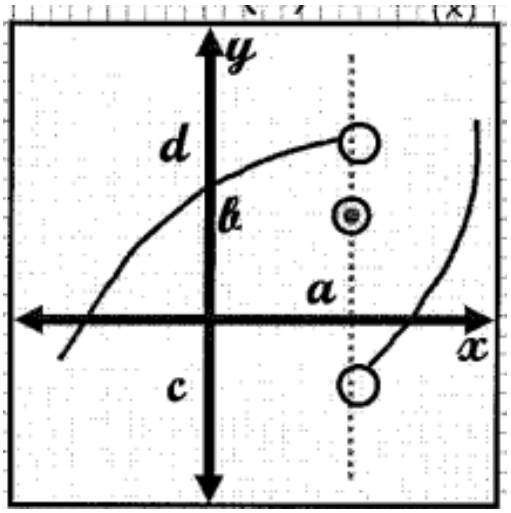
Civil Engineering Bridge Activity

3 separate civil engineering groups at 8 different schools were given three distinct jobs for a construction project on the Tennessee River (indicated by the dotted line on the images below)

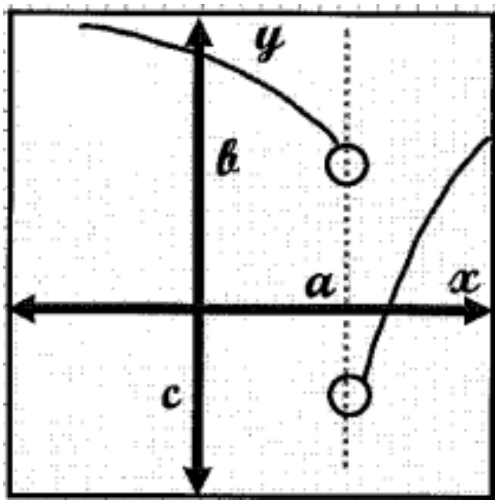
Job 1: Build a road to the west (left) bank of the Tennessee River.
Job 2: Build a road to the east (right) bank of the Tennessee River.
Job 3: Build a bridge on the Tennessee River itself.

Each of the three groups within the school worked independently. Here is what happened:

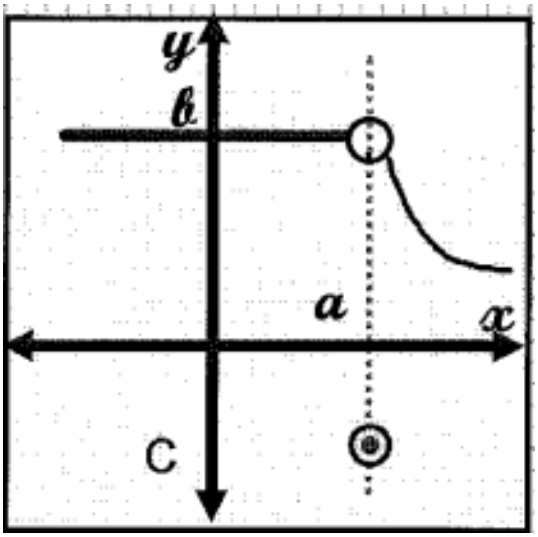
1. Auburn University: A(x)



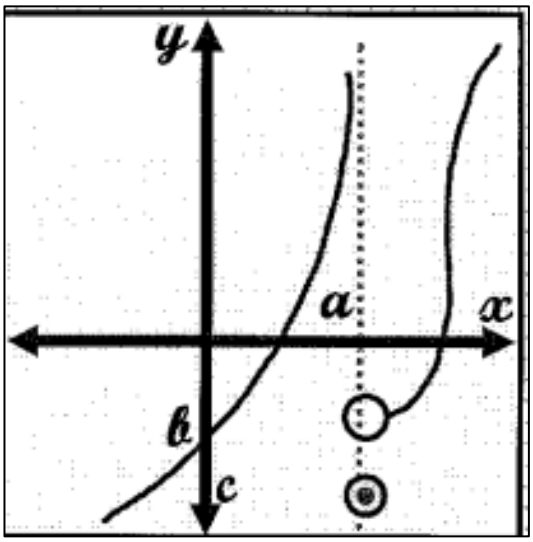
2. Middle Tennessee State University: M(x)



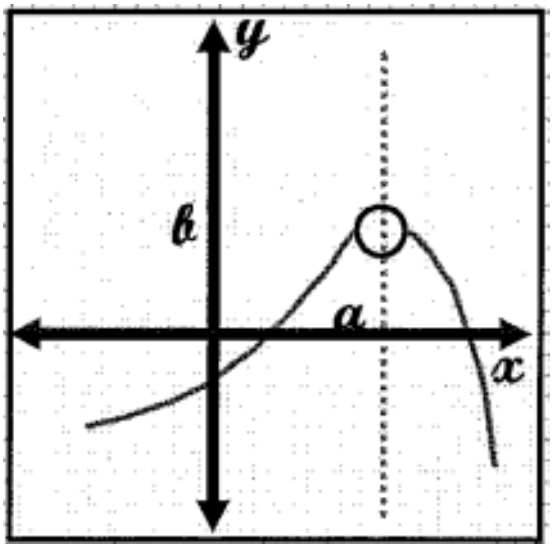
3. University of Georgia: G(x)



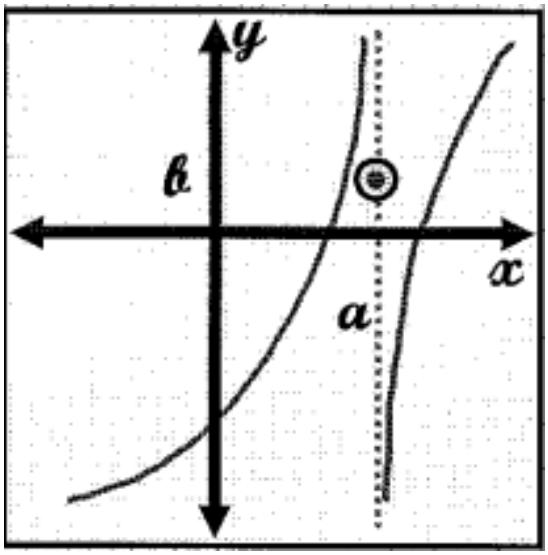
4. Clemson: C(x)



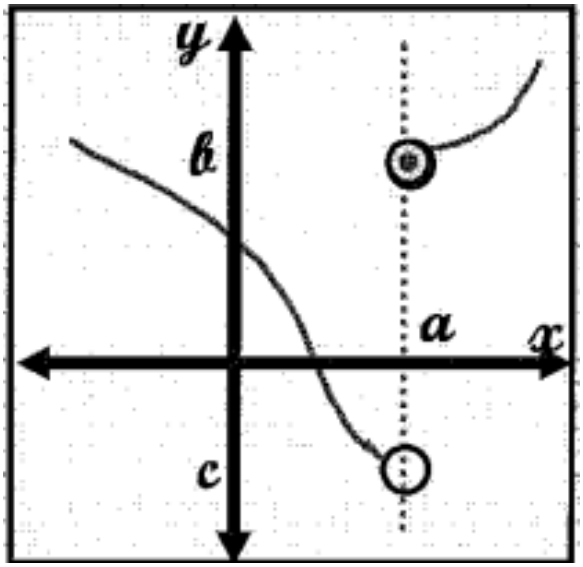
5. University of North Carolina: N(x)



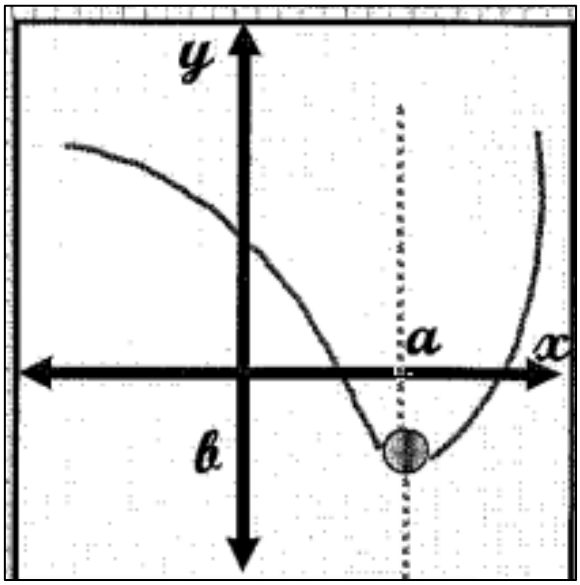
6. University of Tennessee: T(x)



7. Stanford University: S(x)



8. Duke University: D(x)



Your task:

A. For each of these 8 pictures, describe whether or not the road constructed is continuous and why or why not. Be specific, and explain what the three groups got right or wrong in terms of the two roads and the bridge.

B. Rewrite each of those 8 statements about the roads and bridges in proper mathematical notation involving limits and functions. What does it mean mathematically when a function is continuous?

C. There are three types of discontinuities. They are Jump, Removable, and Infinite. Which maps are which?