

A Parabolic Challenge

This activity requires access to iPads and the GeoGebra AR app

Steps:

1. Download the GeoGebra AR app for iOS.
2. Enable background to be viewed inside the app: Gear (top right) > Turn on show background > Turn off show filter and show plane.
3. Pick a real object in the classroom (object must be bigger than a basketball), and pick a flat surface on which to project the parabolic shape.
4. Make changes and experiment with “x-part” and “y-part” of the $z = x^2 + y^2$ quadratic equation in order to make the parabolic shape fit snugly in some way around your real object. Make sure you take note on how individual changes to the equation affect the parabola.
5. When successfully completed, use the app’s camera tool to snap 3 photos and type in the equation that you found to be successful.
6. Complete the reflection prompts.

Photo from GeoGebra (Top View)



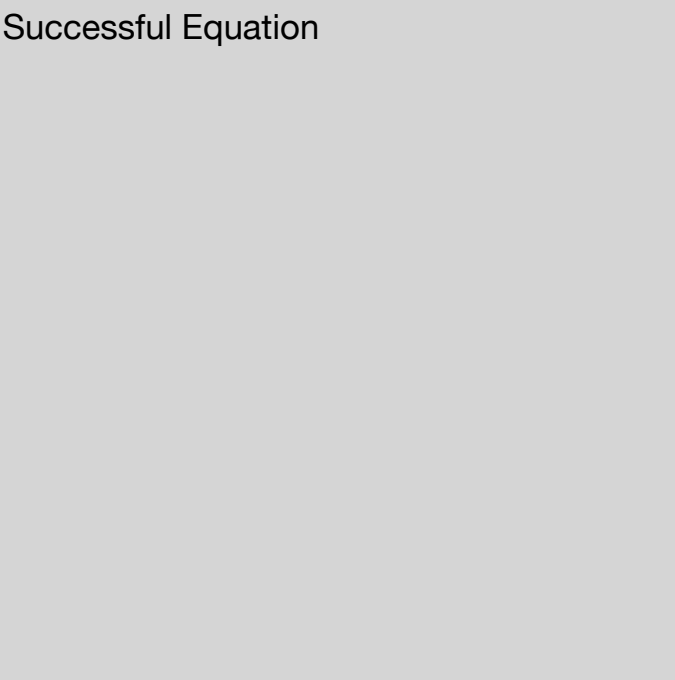
Photo from GeoGebra (Front View)

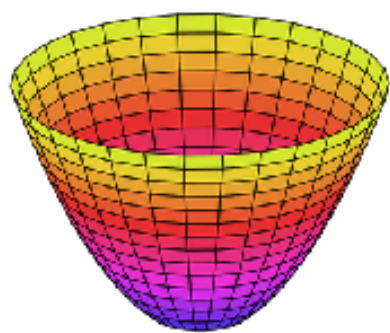


Photo from GeoGebra (Side View)



Successful Equation





Reflection

Be specific and use math and computer science vocabulary when answering these questions.

What changes did you make to the “x part” of the equation, and what affect did they have on the parabola?

What changes did you make to the “y part” of the equation, and what affect did they have on the parabola?

Describe the process that you used to solve this challenge. In what other situations could this process be useful?