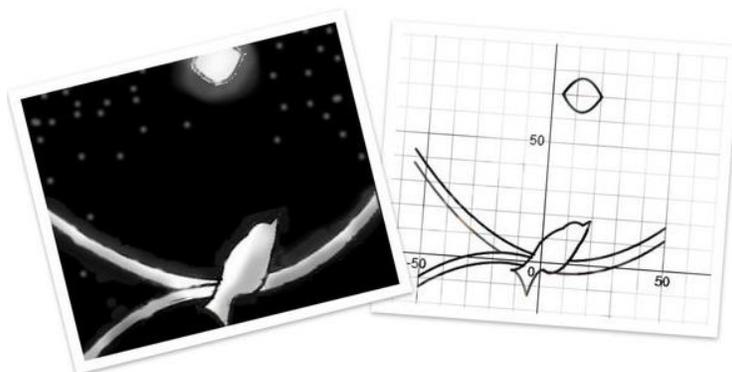


# PARABOLIC ART!



Ahlana & Caroline's artwork

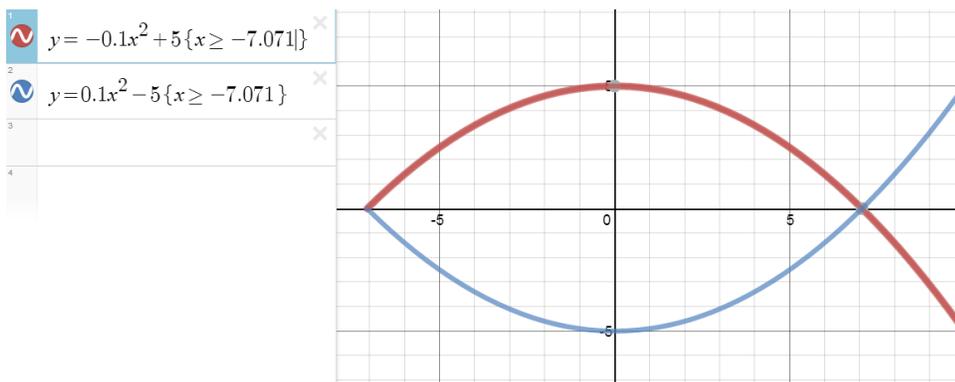
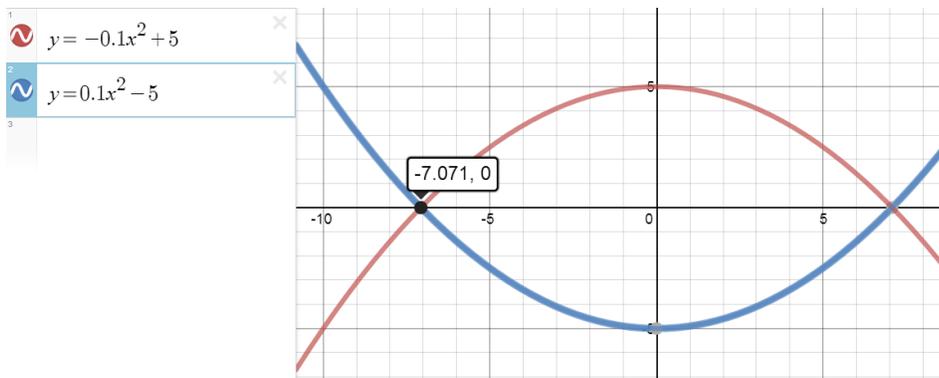
- Your task is to create your own “artwork” using **only** parabolas.
- Use your knowledge of transformations to create all of the equations you need.
- This task is due by the end of class on \_\_\_\_\_
- Start by sketching, on graph paper, what your design will look like with approximate equations. Once this task is accomplished, show it to your teacher and you can then begin with the graphing technology.

You will need to use piecewise functions to create your artwork. These are graphs that are only defined for certain values of  $x$ . These values are called the domain.

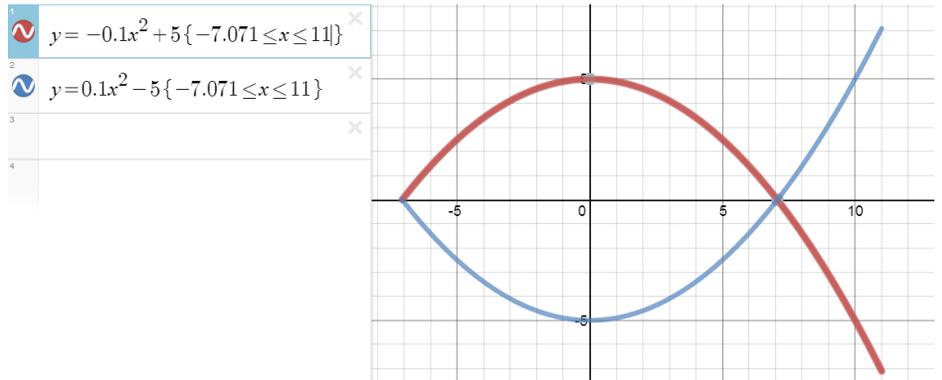
Go to <https://www.desmos.com/> and launch the calculator. You will need to create an account in order to be able to save your work and to share it.

We will draw a simple fish.

1. Graph  $y = -0.1x^2 + 5$
2. Graph  $y = 0.1x^2 - 5$
3. Place your cursor on the left intersection point and click so that the coordinates appear.
4. We want to cut the graphs off at  $x = -7.071$ . We need to add the domain to the end of the equation, in brace (curly brackets):  
 $y = -0.1x^2 + 5 \{x \geq -7.071\}$ .  
 Repeat for the second equation.

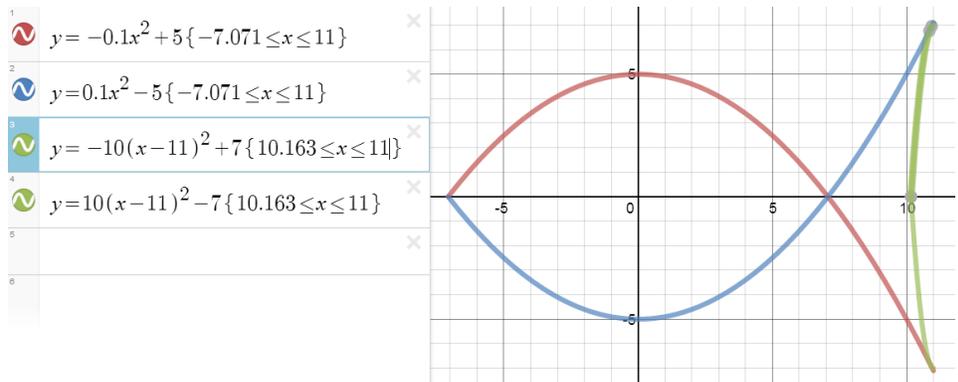


5. Let's change the window so that we can see the tail better. Click on the wrench icon, and change the maximum x-value to 15.



6. I want to cut off the graphs at  $x = 11$  to make a tail. We need to change the domain for both equations to  $\{-7.071 \leq x \leq 11\}$ .

7. Add equations for the tail and determine where to cut them off. Notice that if you click the "Edit List" icon, there is a duplicate icon.

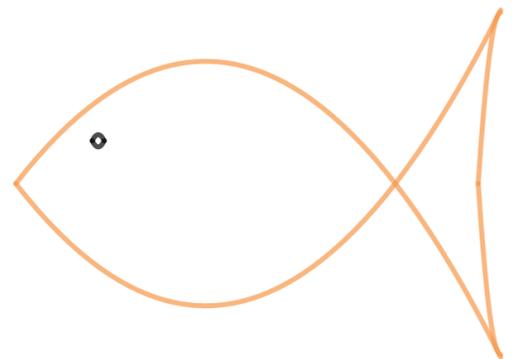
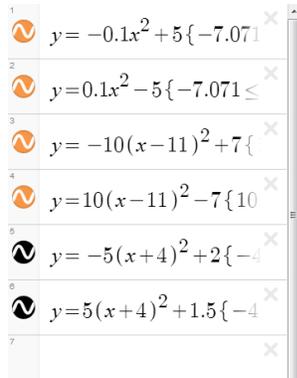


8. I added equations for an eye.

9. You may wish to remove the axes and grid for the final product (click on the wrench icon).



10. You can also change colours by clicking on "Edit List".



You will be marked on (not equally weighted):

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| Complexity: number of equations: _____ | R | 1 | 2 | 3 | 4 |
| Technical Appearance                   | R | 1 | 2 | 3 | 4 |
| Overall Appearance                     | R | 1 | 2 | 3 | 4 |
| Rough Work                             | R | 1 | 2 | 3 | 4 |