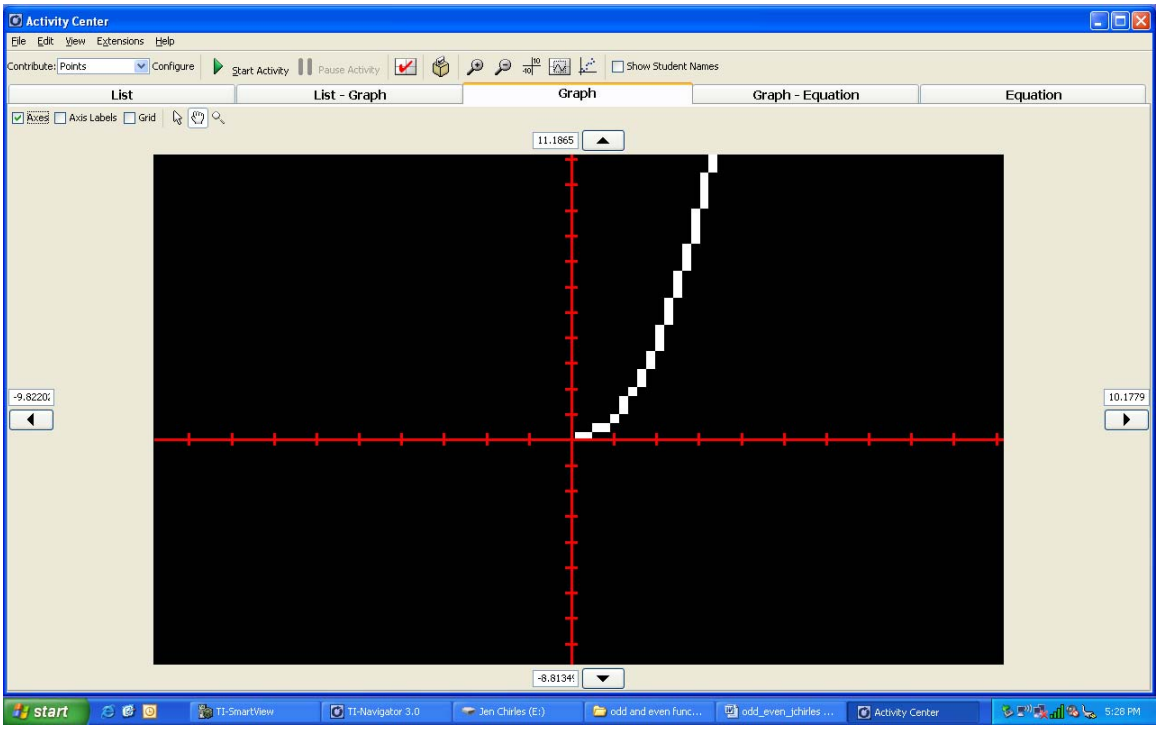
Teaching Odd and Even Functions in Pre-Calculus

Objective of Activity
Students will explore odd and even functions via transformations of a function

Before Activity:
Load inverses.act
Have the class login to Navigator. Have the students locate a point on the function drawn. Have them find the reflection over the y-axis.
What do they notice about the resulting image? (it's a parabola, it's symmetric)



Send students the list of data.
What rule can we make about the reflection. ($(x, y) \rightarrow (-x, y)$)
Can we write an equation of best fit?
(Students can exit navigator and do a regression or notice the pattern)

Clear activity data. Have students reflect their point through the origin. What do they notice about this graph?

Send students the list of data.
What rule can we make about the reflection. ($(x, y) \rightarrow (-x, -y)$)
Can we write an equation of best fit?

(Students can exit navigator and do a regression or notice the pattern) y=x^3 or so.

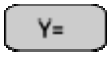
Discuss even/odd functions.
Exit NavNet
Graph $y = \sin x$
Is the sine wave an odd or even function?
How can we make it an odd function? (restrict the domain)
What domain would be preferred?
Graph on your calculator the preferred graph with the appropriate restricted domain.
Screen capture class. Discuss various domains.

Graph $y = \cos x$
Is the cosine wave an odd or even function? neither
How can we make it an even function?
what domain would be preferred?
Graph on your calculator the preferred graph with the appropriate restricted domain.
Screen capture class. Discuss various domains.

Graph $y = e^x$
Is this graph odd or even? neither
How can we make it an even/odd function?
what domain would be preferred?
Graph on your calculator the preferred graph with the appropriate restricted domain.
Screen capture class. Discuss various domains.

Put students into groups, have them graph a even function that has not been discussed.
Screen capture the student's graphs. Discuss the various functions.

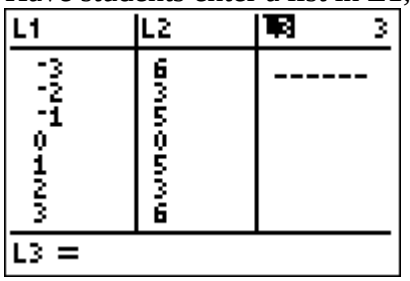
If you want them to, log back into navigator.
Agree/disagree in quick poll for the various graphs.

Have students press 

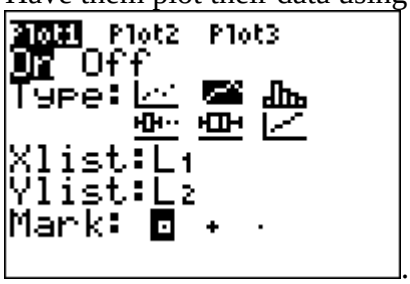
button. Screen capture Y= equation screen.
Discuss types of equations written.

Have student create a table of data that represents an even function.

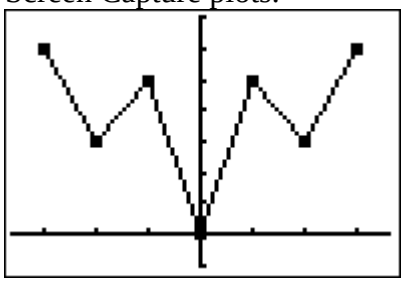
Have students enter a list in L1, L2.



Have them plot their data using connected data plot



Screen Capture plots.



Have each group create a table of values that represent an odd function.
Screen Capture