

**Objectives:**

Using the **ACTIVE GRAPHER** applet, the student will investigate rigid transformations of seven basic functions:  $y=x$ ,  $y=x^2$ ,  $y=x^3$ ,  $y=|x|$ ,  $y=\sqrt{x}$ ,  $y=1/x$ , and  $y=1/x^2$ .

**Functionality:**

When the student presses **START**, the **ACTIVE GRAPHER NOTE** will be displayed.



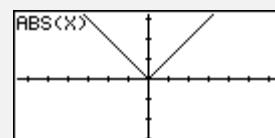
**VIEWS** allows the student to pick one of the seven functions to be investigated and to activate the grapher.



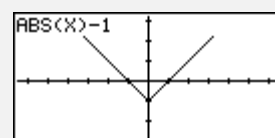
**Choose Function** will prompt the student to select a function to be investigated from the list:  
 $y=x$ ,  $y=x^2$ ,  $y=x^3$ ,  $y=|x|$ ,  $y=\sqrt{x}$ ,  $y=1/x$ ,  $y=1/x^2$ .



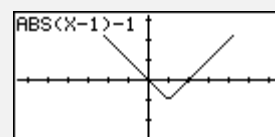
**Active Grapher** will display the basic function on the screen.



The left and right arrows will shift the function vertically one unit at the time. The function will automatically be updated as the shift occurs.

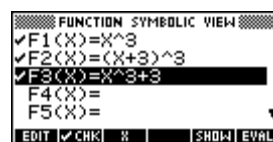
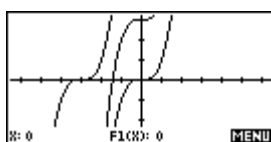
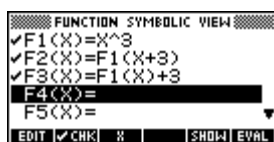


The up and down arrows will shift the function horizontally one unit at the time. The function will automatically be updated as the shifts occur.



**Additional Exploration:**

Using the function applet, have students investigate transformations. Use **EVAL** to convert the function notation into an algebraic expression. An example would be to compare and contrast the graphs  $f(x)$ ,  $f(x+3)$ , and  $f(x)+3$  where  $f(x)=x^3$ .



Programs associated with this applet:  
 .AGR.CF, .AGR.AG, .AGR.SV