

Objectives:

Using the **REFLECTION** applet, the student will reflect graphs of functions about the y-axis, x-axis, origin, and the line $y=x$.

Functionality:

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

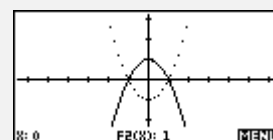
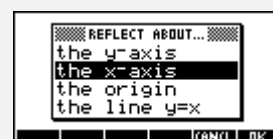
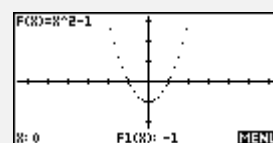
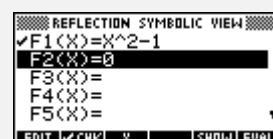
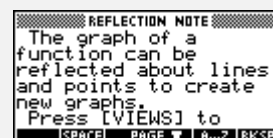
VIEWS allows the student to enter and plot $f(x)$ and to choose to reflect $f(x)$ about the y-axis, the x-axis, $y=x$, or the origin.

The first step is to **Enter $f(x)$** in $F1(X)$.

Plot $f(x)$ displays the graph of $f(x)$ in dot mode. This graph will reappear for comparison purposes on each successive plot as the different reflections are explored.

Reflect about displays choices for reflection.

After selecting the reflection, $f(x)$ will be plotted in dot mode with the reflected $f(x)$ plotted in connected mode.



Ideas can be applied to:

Trigonometry, Precalculus, Calculus

Programs associated with this applet:

.RFL.RA, .RFL.PF, .RFL.EF, .RFL.SV

Exploring Reflections

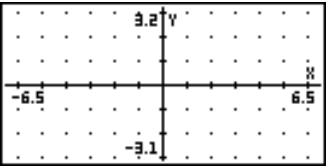
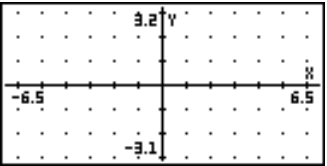
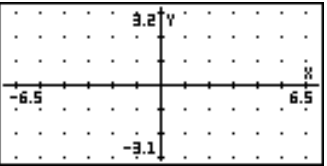
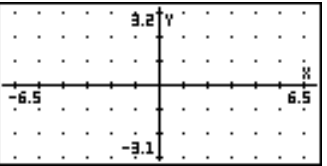
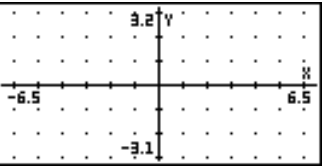
y-axis, x-axis, origin, $y = x$

Name _____

Date _____

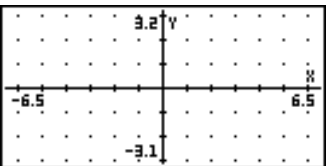
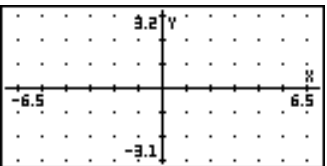
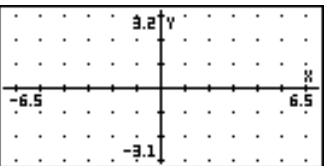
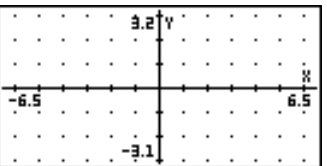
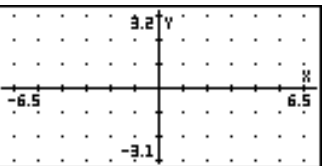
Directions: Sketch each of the following functions. Use the **REFLECTION** applet to reflect the function about the y-axis, x-axis, $y=x$, and the origin. Record a copy of each reflection in the table.

1. $y = x^2$

| Function $f(x)$ | Reflect about y-axis | Reflect about x-axis | Reflect about origin | Reflect about $y=x$ |
|---|---|--|---|---|
|  |  |  |  |  |

Conclusions: _____

2. $y = x^3$

| Function $f(x)$ | Reflect about y-axis | Reflect about x-axis | Reflect about origin | Reflect about $y=x$ |
|---|---|--|---|---|
|  |  |  |  |  |

Conclusions: _____

3. $y = |x|$

| Function $f(x)$ | Reflect about y-axis | Reflect about x-axis | Reflect about origin | Reflect about $y=x$ |
|-----------------|----------------------|----------------------|----------------------|---------------------|
| | | | | |

Conclusions: _____

4. $y = \sin(x)$

| Function $f(x)$ | Reflect about y-axis | Reflect about x-axis | Reflect about origin | Reflect about $y=x$ |
|-----------------|----------------------|----------------------|----------------------|---------------------|
| | | | | |

Conclusions: _____

s