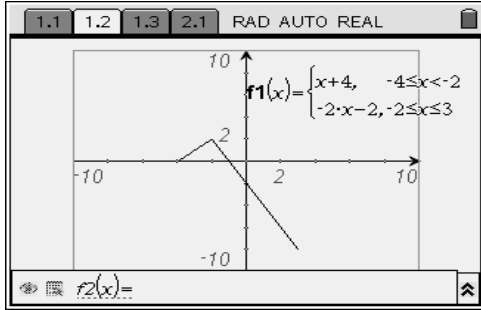Transformations

I. Read the directions on page 1.1, then analyze the graph of f1(x) created on page 1.2 (as seen below). Create a table of values (you may go to the menu, view, then add a function table on page 1.2 to see a table).

1.1	1.2	1.3	2.1	RAD AUTO REAL

$$f1(x)=\begin{cases} x+4, & -4\le x<-2 \\ -2\cdot x-2, & -2\le x\le 3 \end{cases}$$

f2(x)=

Table

x	f1(x)

II. Go to page 1.3. Graph f1(x). In f2(x), create the equation 2f1(x). Using various representations (graph, table, etc), analyze changes. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences

III. Go to page 2.1. Using the same function as the previous problem, graph f1(x). In f2(x), create the equation -f1(x). Using various representations, , analyze changes in the graph and table. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences

Compare situations I, II, and III. How are f(x), 2f(x), and –f(x) related?

IV.   Go to page 3.1. Using the same function as the previous problem, graph f1(x). In f2(x), create the equation f1(x)+2. Using various representations, , analyze changes in the graph and table. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences

V.   Go to page 4.1. Using the same function as the previous problem, graph f1(x). In f2(x), create the equation f1(x-2). Using various representations, , analyze changes in the graph and table. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences

VI.   Go to page 5.1. Using the same function as the previous problem, graph f1(x). In f2(x), create the equation f1(2x). Using various representations, , analyze changes in the graph and table. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences

VII. Go to page 6.1. Using the same function as the previous problem, graph f1(x). In f2(x), create the equation f1(-x). Using various representations, , analyze changes in the graph and table. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences

VIII. Go to page 7.1. Using the same function as the previous problem, graph f1(x). In f2(x), create the equation f1(x)+2. Using various representations, , analyze changes in the graph and table. Include what is the same and what is different in the domain, range, graph, and table. In f3(x), write an equivalent equation to represent f2(x).

Graph

Table

Similarities	Differences