



Investigation on transformation of functions

Part III (Reflection)

Objective: In this investigation we will examine the horizontal and vertical reflection in graphs of various functions

Use of Graphing calculator is required for this activity (Casio cg20 or Casio cg50 is recommended)

1. Sketch the following curves using your GDC and answer the questions that follow.

- $y_1 = x^3 - 1$
- $y_2 = -(x^3 - 1)$
- $y_3 = 3x + 2$
- $y_4 = -(3x + 2)$
- $y_5 = 2x^2 + 3$
- $y_6 = -(2x^2 + 3)$

What do you observe by multiplying a function $f(x)$ by negative 1?

2. Sketch the following curves using your GDC and answer the questions that follow.

- $y_1 = x^3 + 3$
- $y_2 = (-x)^3 + 3$
- $y_3 = e^x + 2$
- $y_4 = e^{-x} + 2$
- $y_5 = 2x + 3$
- $y_6 = 2(-x) + 3$

What do you observe by multiplying the inputs of a function $f(x)$ by negative 1?

Generalize your findings for $g(x)$ where $g(x)$ is obtained by $-f(-x)$

