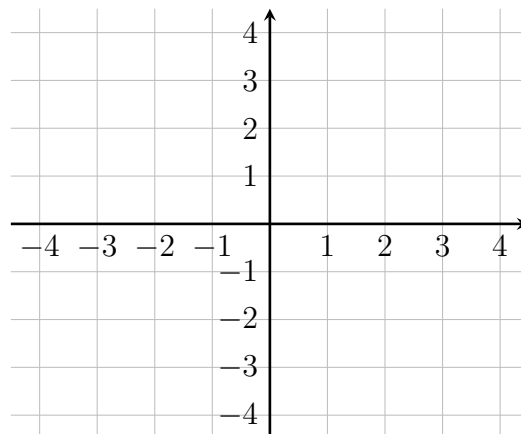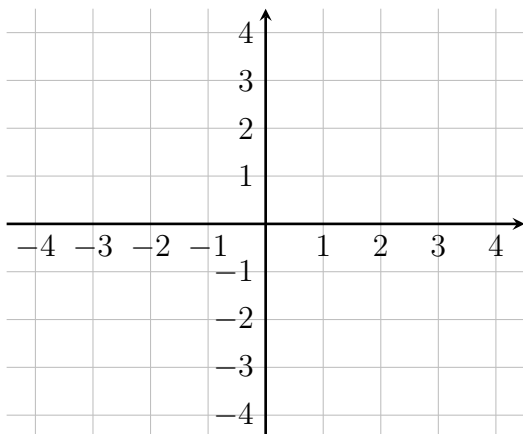**Purpose:** In this problem set, you will explore the types of symmetries of functions.

1. On one of the coordinate axes below, sketch the graph of $f(x) = x^2$. On the other, sketch the graph of $f(x)$ reflected across the y-axis and write down the formula of this transformation. What do you notice?

2. On one of the coordinate axes below, sketch the graph of $f(x) = \sqrt[3]{x}$. On the other, sketch the graph of $f(x)$ reflected across the y-axis followed by reflected about the x-axis. Write down the formula of this transformation. What do you notice?
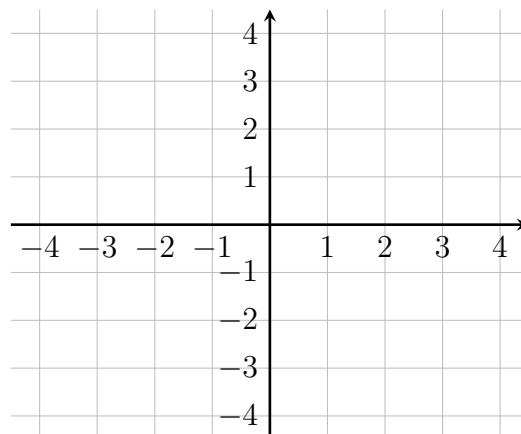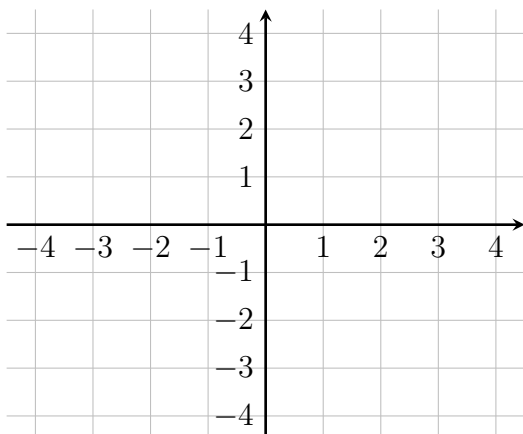
Definitions:

- A function $f(x)$ is called **even** if $f(x) = f(-x)$.

    – Graphically:

- A function $f(x)$ is called **odd** if $f(x) = -f(-x)$.

    – Graphically:

3. Which of the functions from the first page were even? Which were odd? Which were neither?

4. Among the three coordinate axes below, sketch an even function, an odd function, and a function that is neither even nor odd. Be sure to label each function as even, odd, or neither.