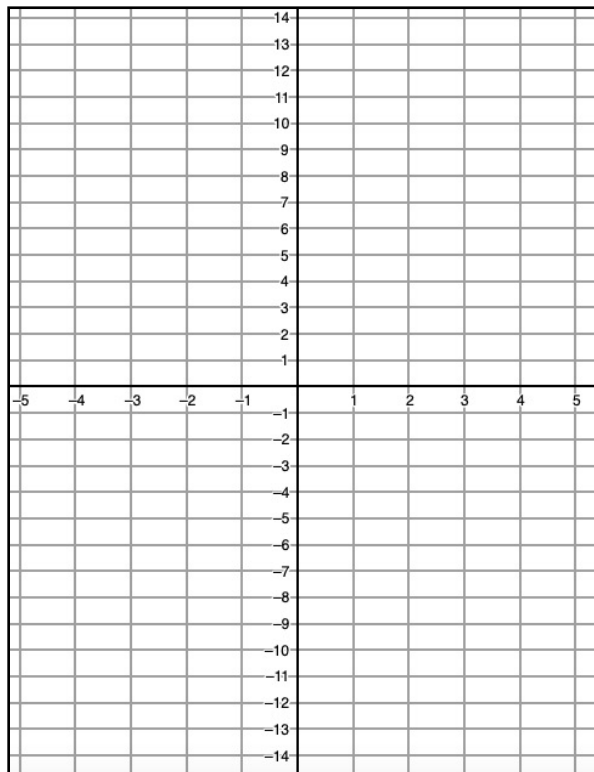
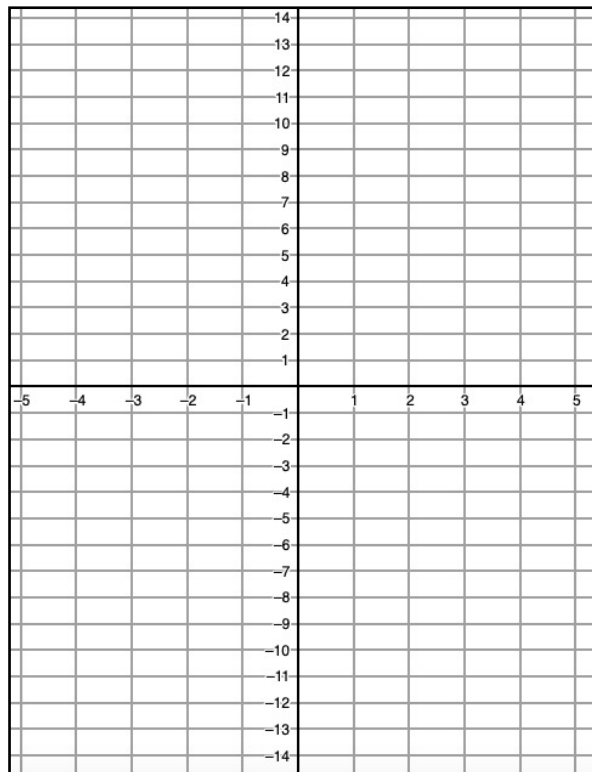


Skill Based - Graph each function using transformations. Use accurate points and different colors for clarity

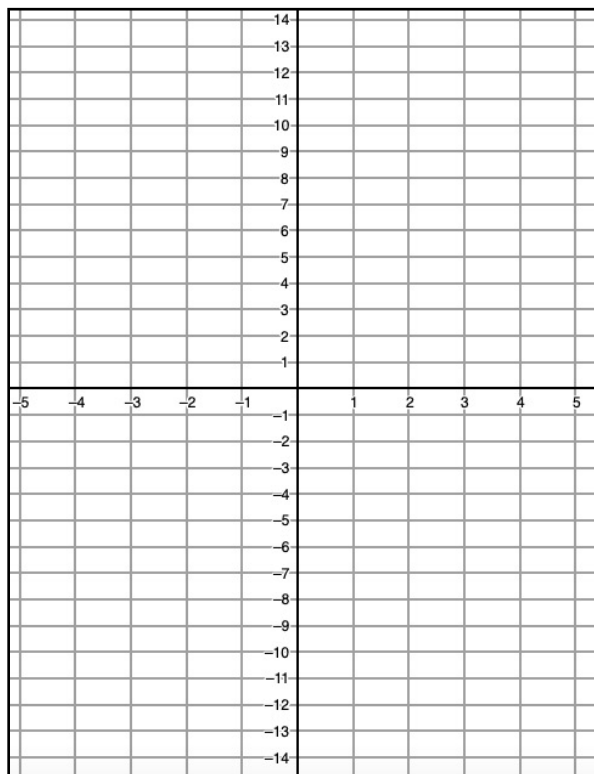
$$f(x) = -3(x-2)^2 + 4$$



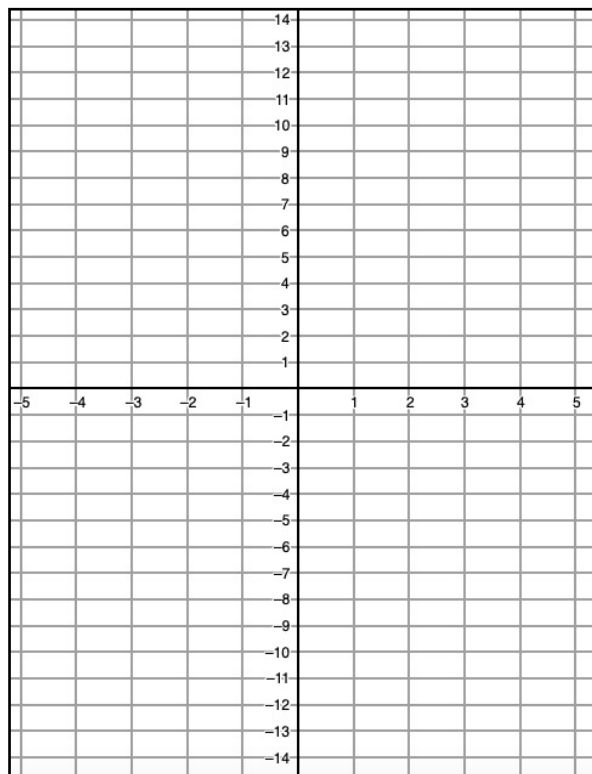
$$f(x) = 2\sqrt{x+5} - 2$$



$$f(x) = -(x+2)^3$$

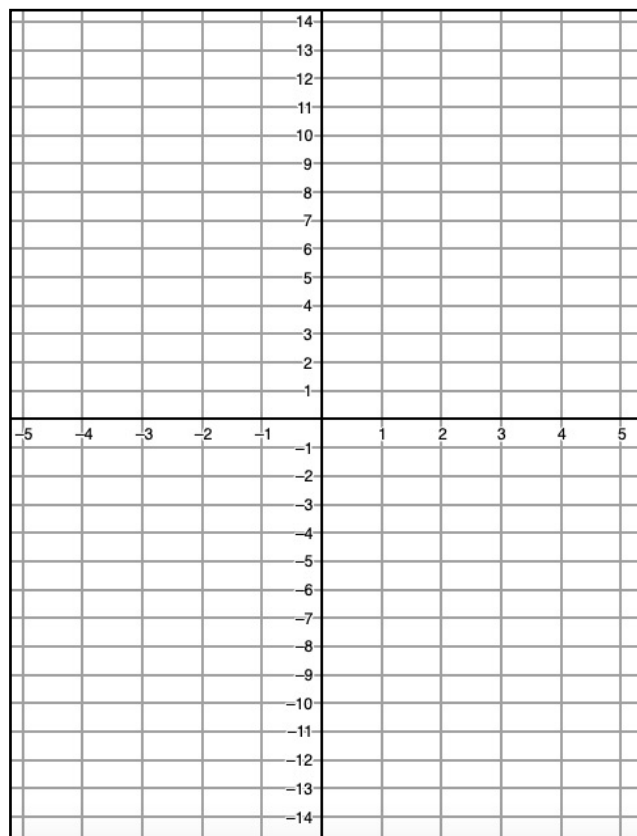
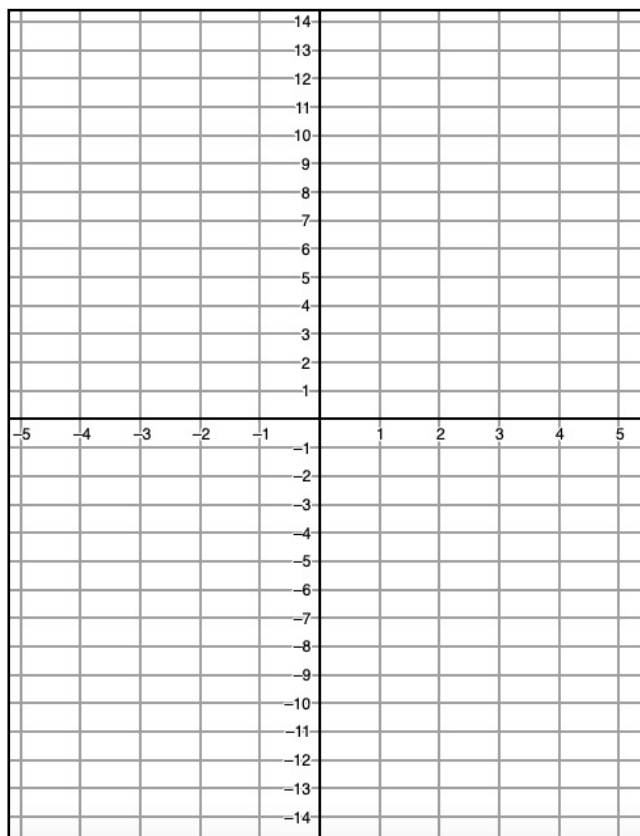


$$f(x) = |x-4| - 6$$



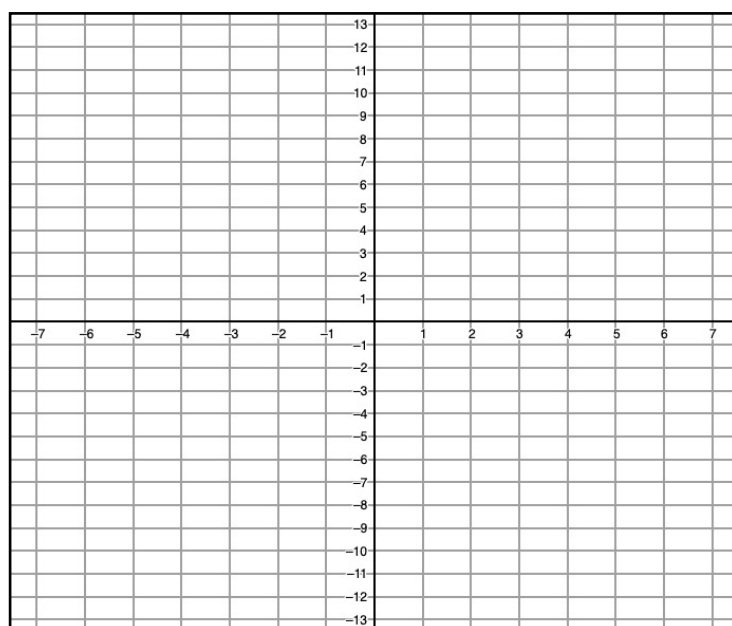
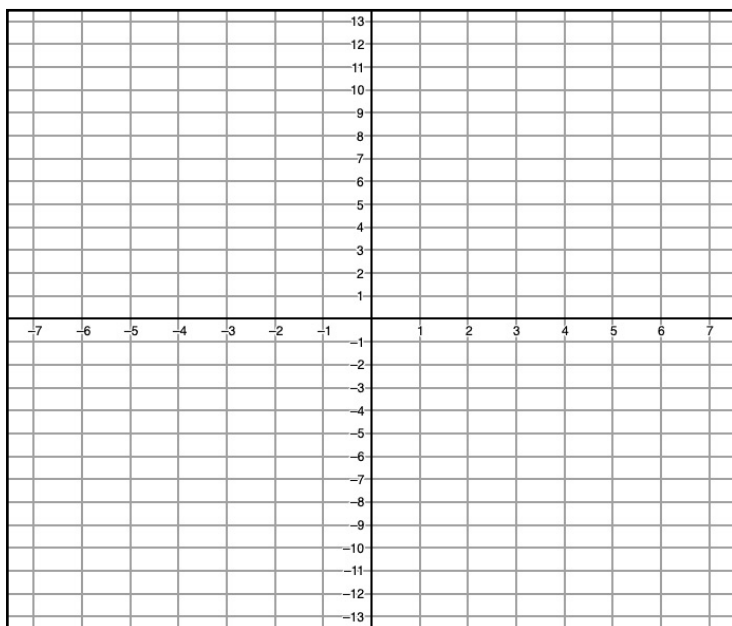
$$\begin{cases} y = -4\sqrt{x+6} \\ y = (x+2)^3 - 8 \end{cases}$$

$$\begin{cases} y = -4|x| \\ y = -2x^2 \end{cases}$$

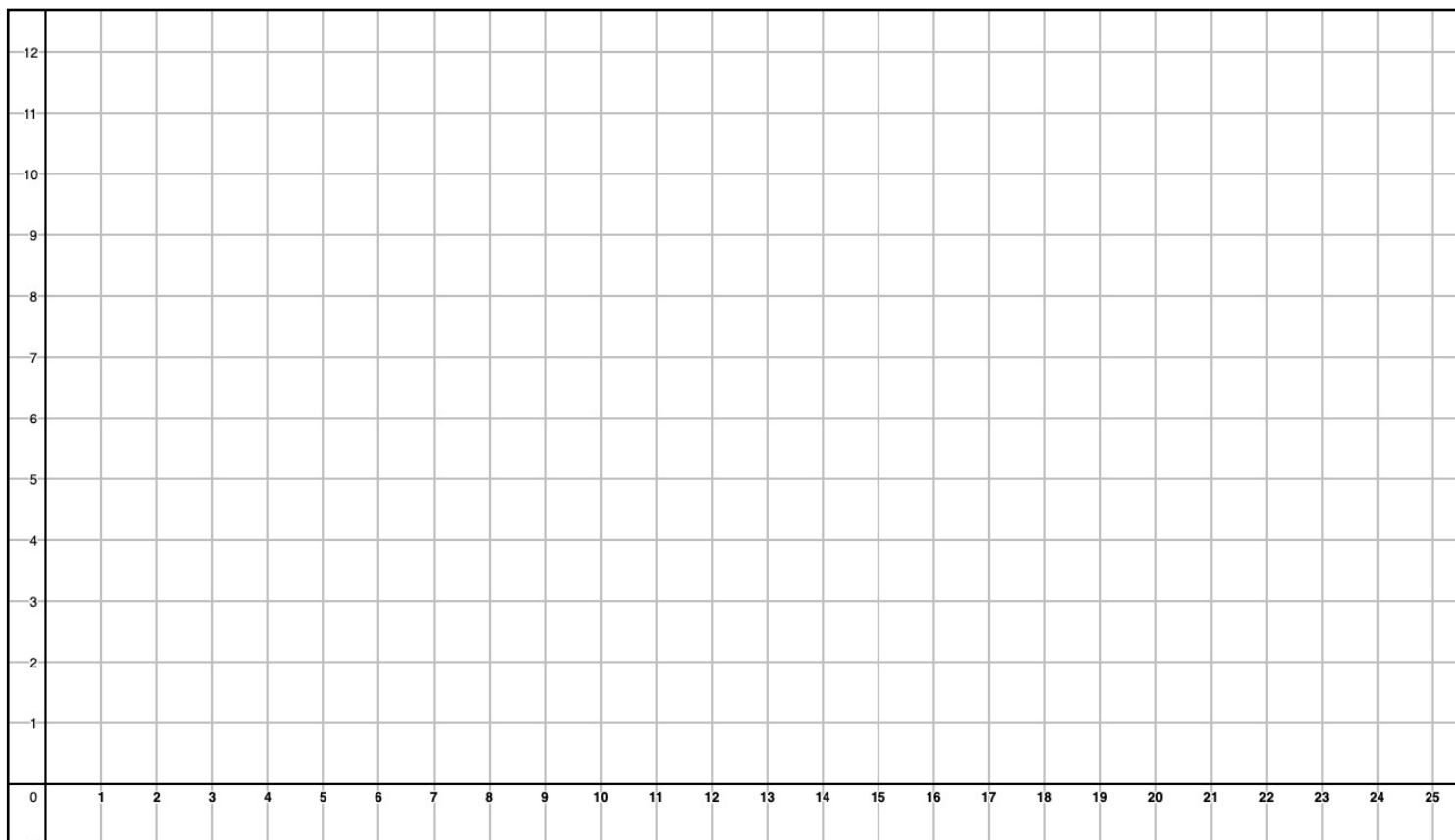


$$f(x) = \begin{cases} 6; & x \leq -2 \\ \sqrt{x+2}; & -2 < x \leq 7 \end{cases}$$

$$f(x) = \begin{cases} -x; & x < 0 \\ x; & 0 < x < 4 \\ -(x-4)^2 + 4; & x \geq 4 \end{cases}$$



Application - Graph each function using transformations. Use the information from your graph to answer the questions that follow



Two collectible hamster wheels are sold at **Hamster-Con**. Both wheels cost the exact same price at point of purchase. Months after the hamster-con, both wheels start to lose their value. Below are the functions of the value of the wheels where “y” is value and “x” is months from the initial purchase.

The Fuzzball Deluxe

$$y = -2\sqrt{x} + 10$$

The Spin-a-riffic v. 2.0

$$y = -\frac{2}{3}x + 10$$

- Graph both function and label the axes accordingly.
- What is the initial value of the wheels? _____
- After how many months are the wheels the same value? _____
- Over what time interval is the ***The Spin-a-riffic v. 2.0*** worth more than then ***The Fuzzball Deluxe?***

- When are the wheels worthless? _____

- What is the reasonable domain and range of ***The Spin-a-riffic v. 2.0?*** _____
- What is the reasonable domain and range of ***The Fuzzball Deluxe?*** _____