



POPE JOHN PAUL II
PREPARATORY SCHOOL

HONORS PRE CALCULUS/TRIGONOMETRY SUMMER ASSIGNMENT

Congratulations on your completion of Honors Algebra II/Pre-Calculus. Honors Pre-Calculus moves quickly through challenging topics. To help you achieve maximum success, it is beneficial for you to stay familiar with many of the algebra and geometry topics you have seen over the past several years.

This assignment should take approximately 5 hours. It is due by the end of the school day on August 4. Do not complete this entire assignment during the first week of summer. Do not wait until the last minute. Instead, consider working 30 minutes every week throughout the summer. Your assignment will be graded for completion and for accuracy, and the first test of the year will contain a selection of material from this assignment.

You are encouraged to work together, but it is important that you do your own work so that you are familiar and comfortable with this material so you can build on it in Honors Pre-Calculus.

I am excited to have you in class next year, and I am looking forward to sharing and learning beautiful math with you. If you have questions, you may email me at Amanda.peper@popeprep.org.

Have a great summer,

Mrs. Peper

Part 1 Directions: Join the Delta Math Summer Class by going [here](https://www.deltamath.com/students?code=BL86-37K8) (<https://www.deltamath.com/students?code=BL86-37K8>) or by going to [deltamath.com](https://www.deltamath.com), clicking Register, and using the code BL86-37K8 along with your popeprep email account. There are 3 sets of assignments for you to complete. You can and should watch the videos if you get stuck. Do your work in a blank Notability file. You may use one file for all of the different assignments. You will submit your Notability work to Google Classroom once the school year begins.

Part 2 Directions: Import this document to Notability. Graph the parent functions and their transformations. You will submit this file with your work to Google Classroom once the school year begins. You should not be substituting in one point at a time to create each graph. *You should not use a calculator for any problems.* **If you prefer to print and work on paper, that is fine. You will turn in your paper copy.**

Teacher Contact

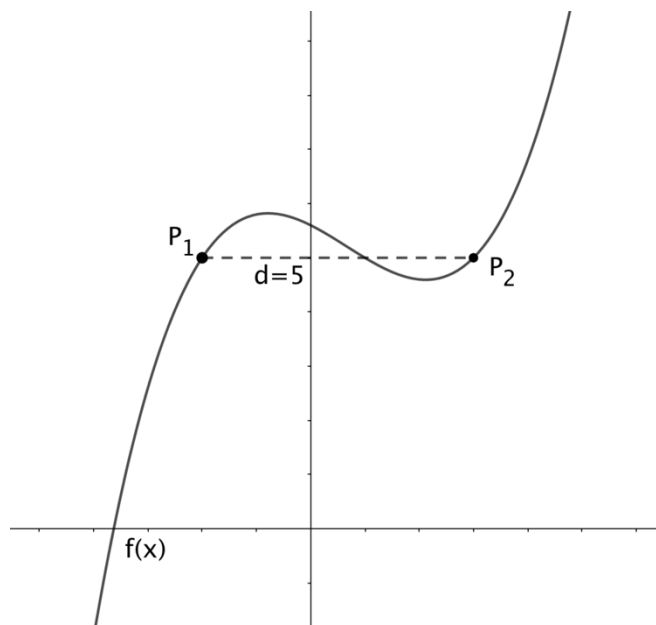
Mrs. Peper (amanda.peper@popeprep.org)

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Part 2

1. Below is a graph of a function $f(x)$. P_1 and P_2 are two points on $f(x)$ with the same y -value. The horizontal distance, d , between P_1 and P_2 is 5, as shown in the graph.



a. $f(x-3)$ is what kind of transformation?

b. $f(x)+1$ is what kind of transformation?

c. $f(2x)$ is what kind of transformation?

d. $f\left(\frac{1}{3}x\right)$ is what kind of transformation?

The points P_1 and P_2 will move as $f(x)$ undergoes the specified transformations.

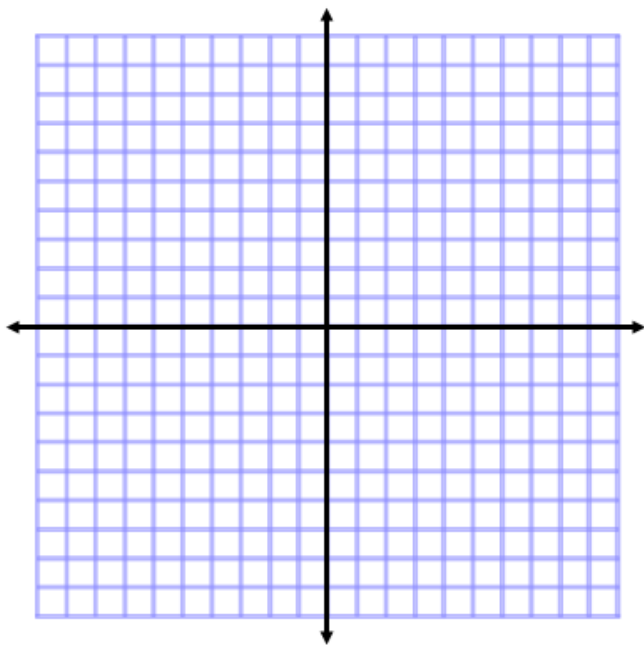
e. On the graph of $f(x-3)$, what is the horizontal distance between P_1 and P_2 ? _____

f. On the graph of $f(x)+1$, what is the horizontal distance between P_1 and P_2 ? _____

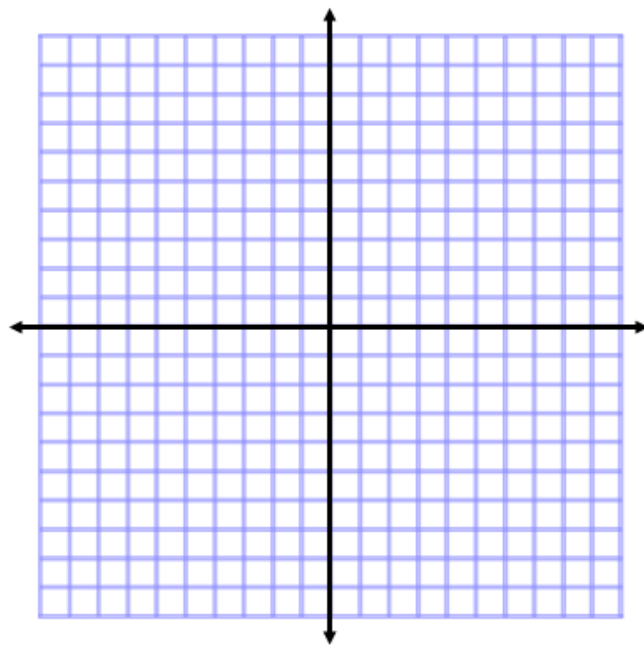
g. On the graph of $f(2x)$, what is the new horizontal distance between P_1 and P_2 ? _____

h. On the graph of $f\left(\frac{1}{3}x\right)$, what is the horizontal distance between P_1 and P_2 ? _____

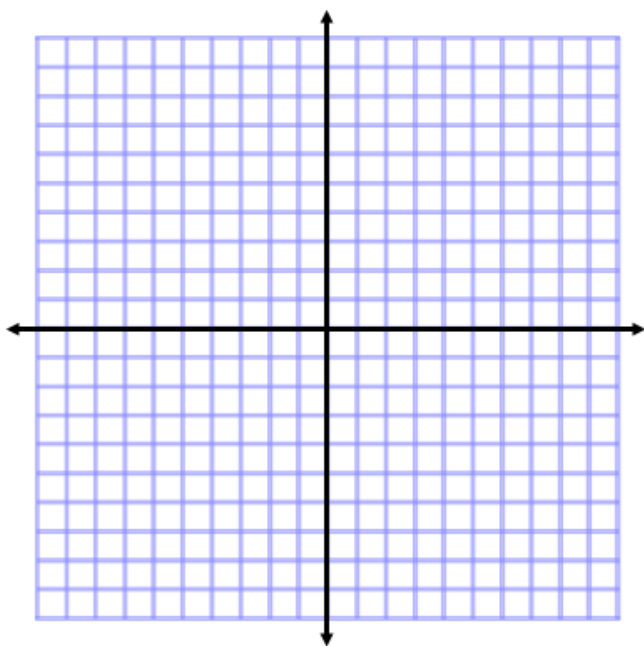
2a. $f(x) = -\left(\frac{1}{2}(x-4)\right)^3 + 1$



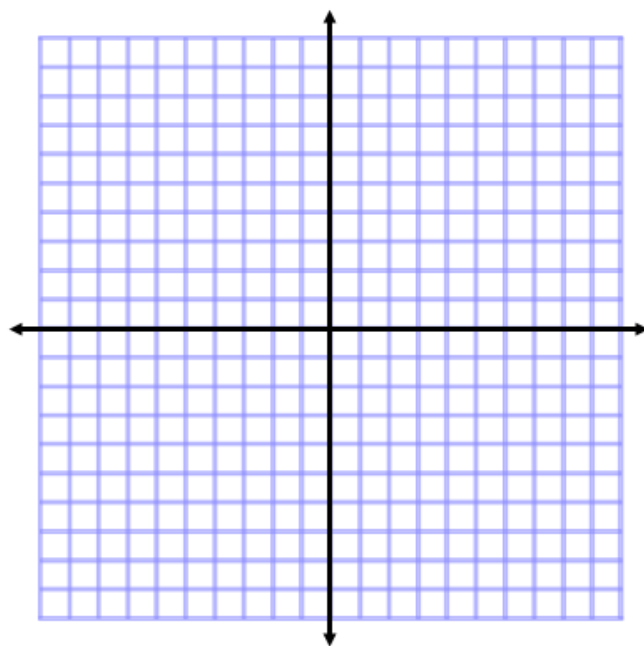
2b. $f(-x)$



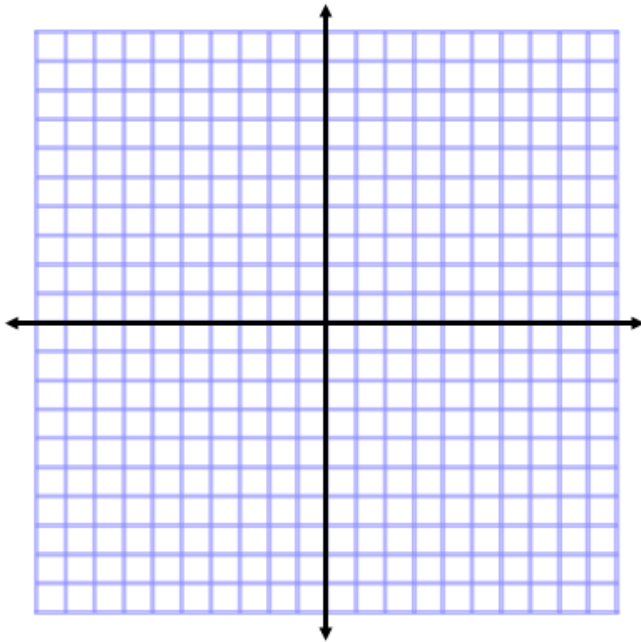
3a. $f(x) = \sqrt[3]{6-2x} - 2$



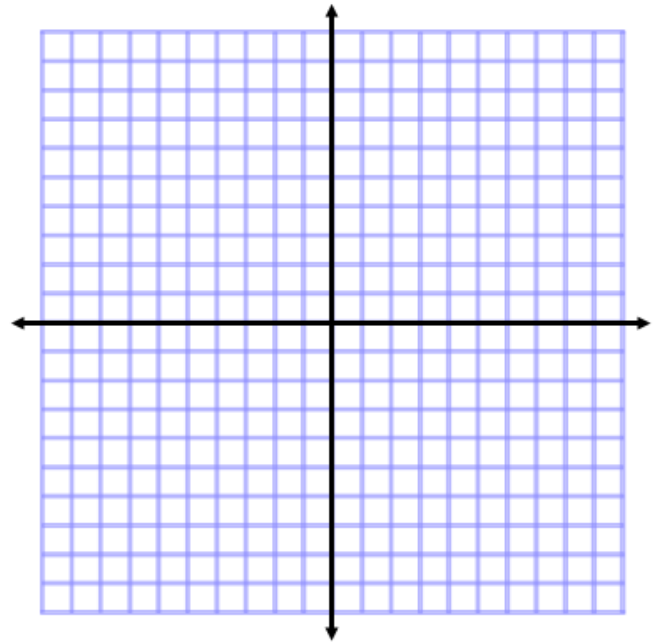
3b. $f(|x|)$



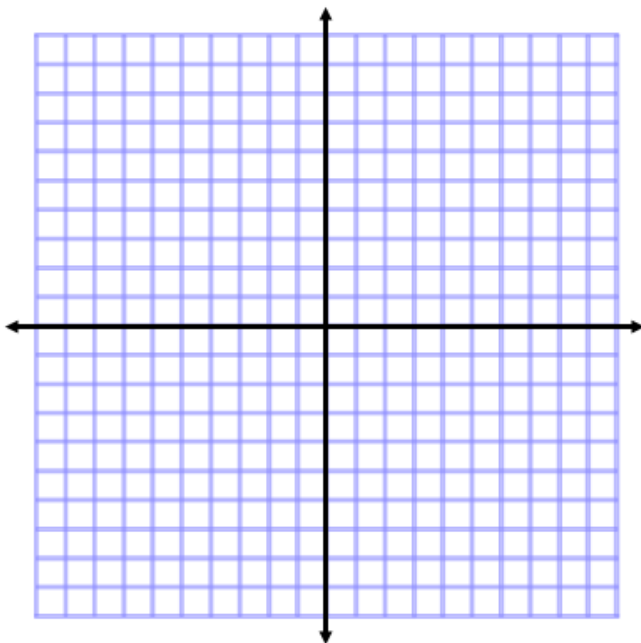
4a. $f(x) = \sqrt{\frac{1}{4}(x+9)} - 3$



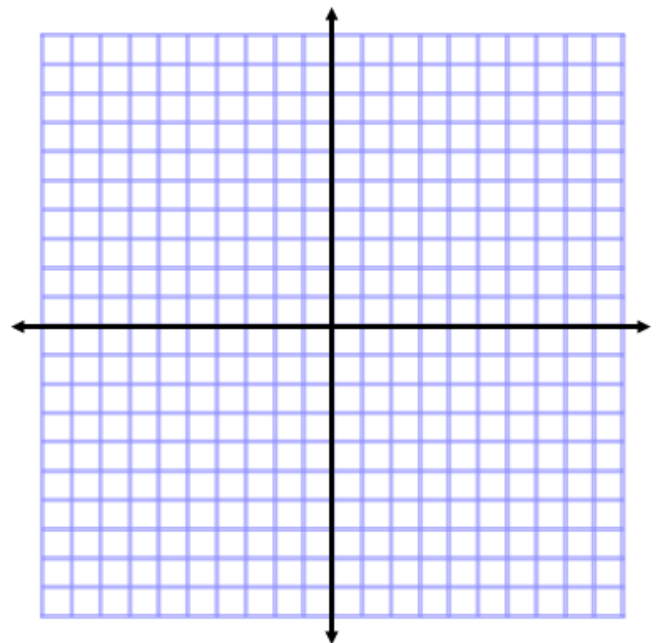
4b. $|f(x)|$



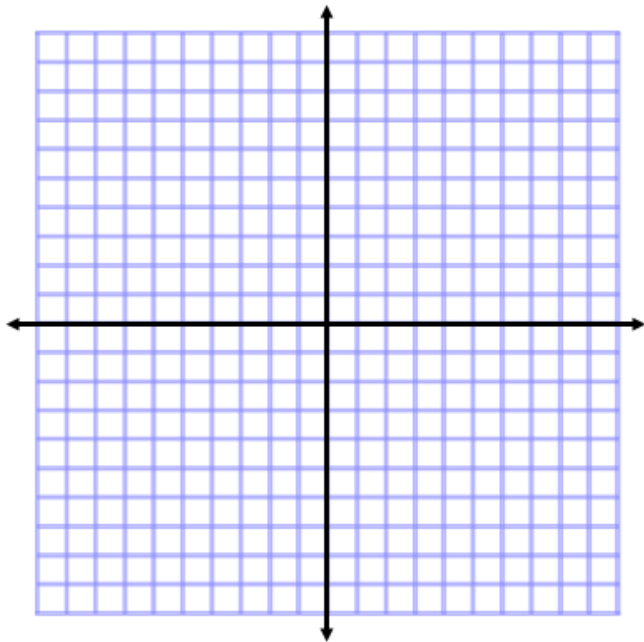
5. $f(x) = -\frac{1}{2}2^x + 5$



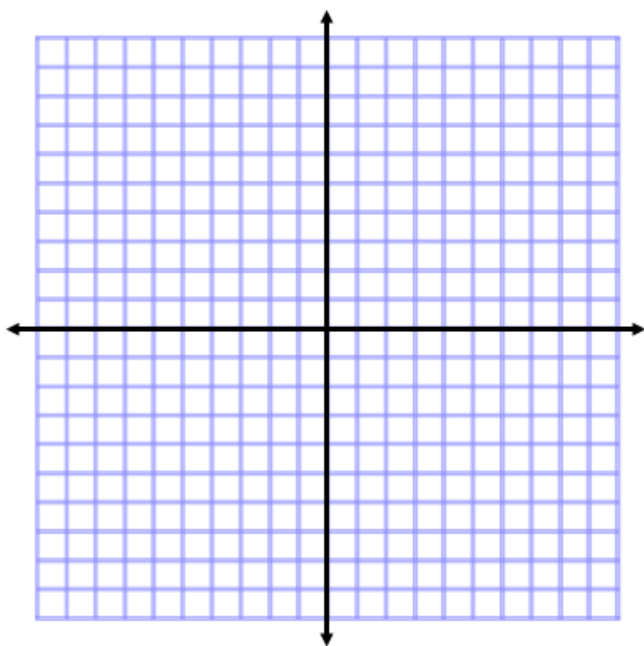
6. $f(x) = \left(\frac{1}{3}\right)^{-x} - 4$



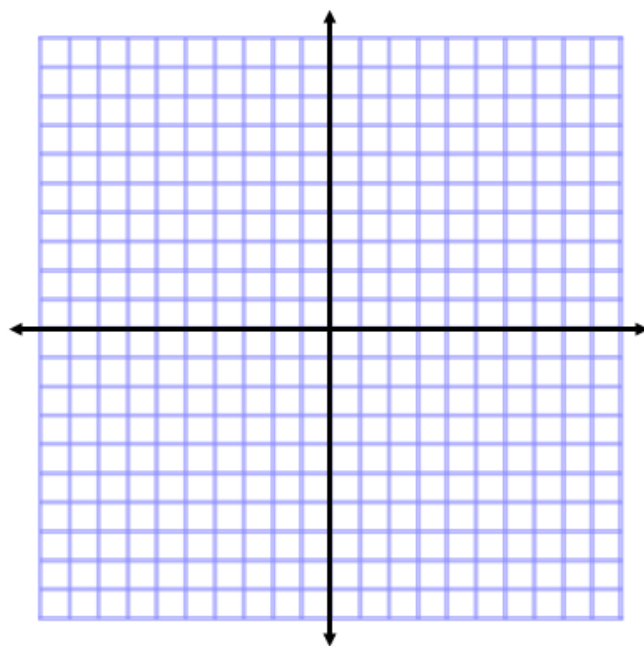
7. $f(x) = 3\sqrt{36 - (x+3)^2} - 9$



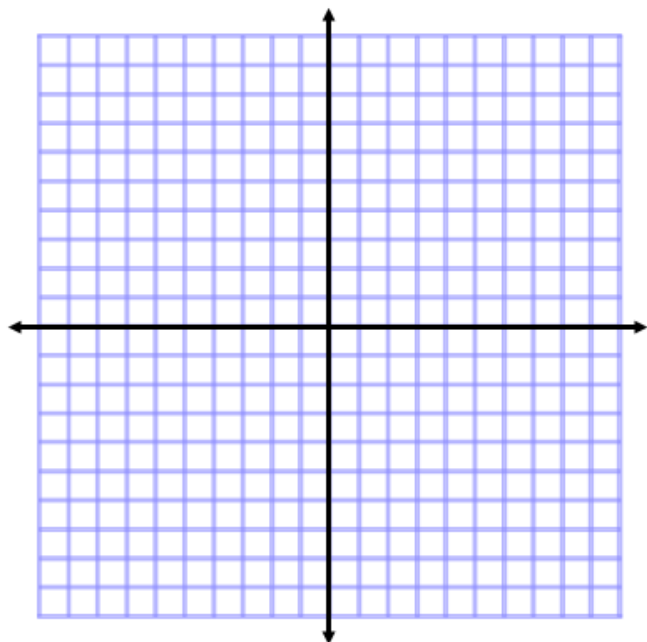
8a. $f(x) = -\frac{2}{3}(x+4) - 5$



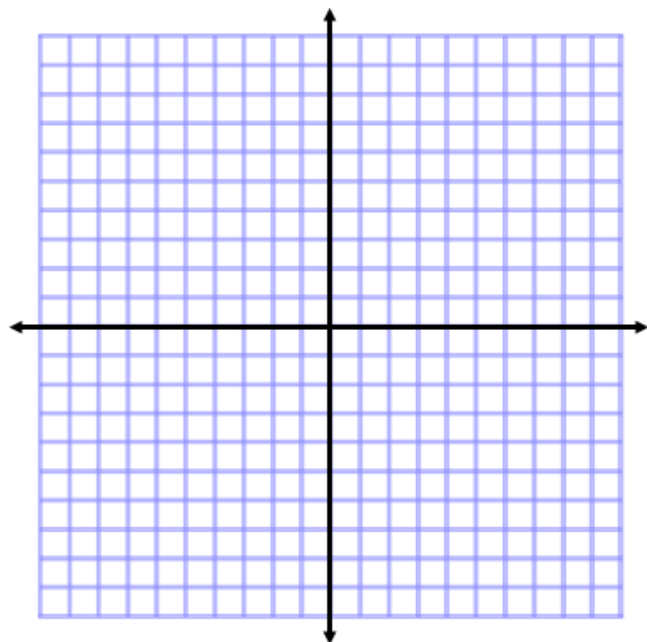
8b. $f(|x|)$



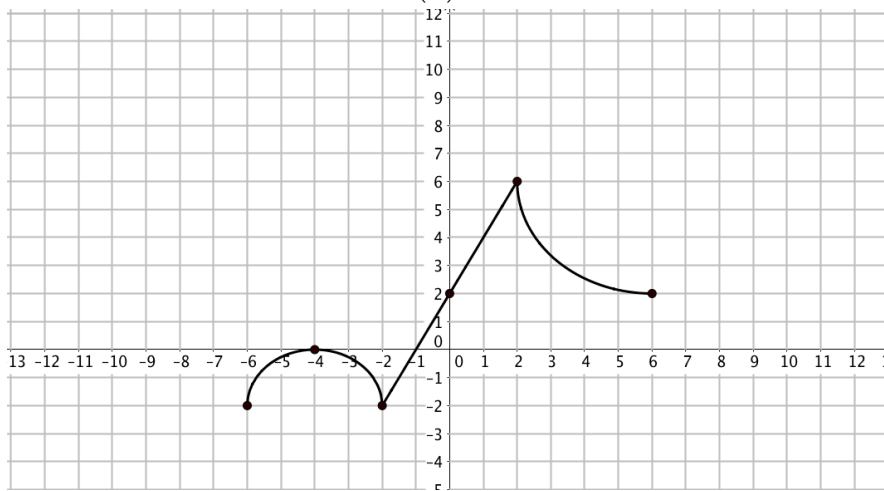
9a. $f(x) = 3\left(\frac{1}{2}x - 2\right)^2 - 5$



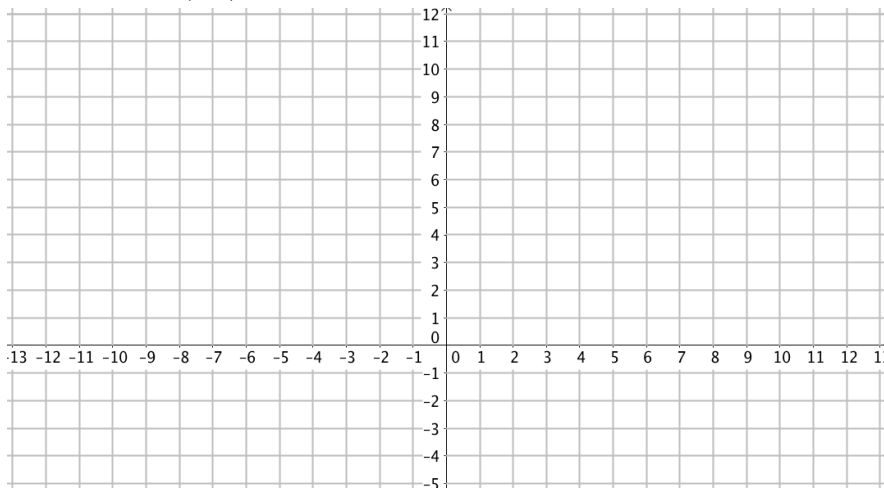
9b. $-f(x)$



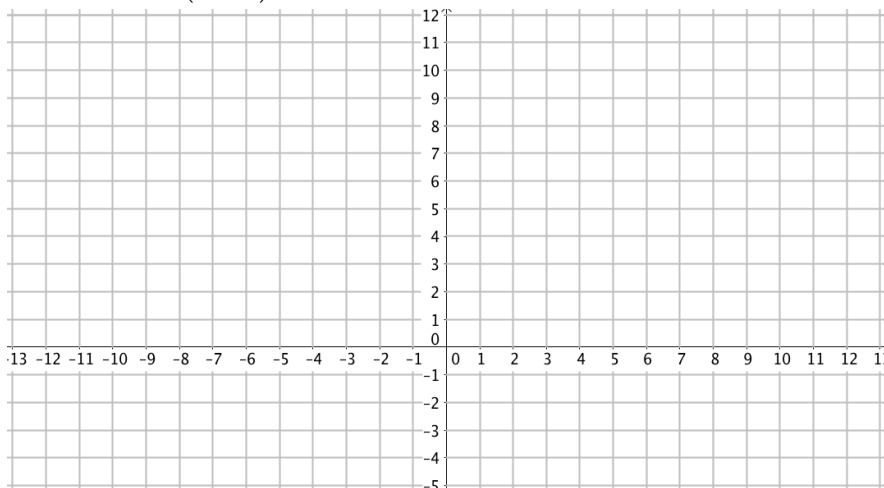
10. Below is a graph of a function $h(x)$. In each blank grid, graph the transformed function.



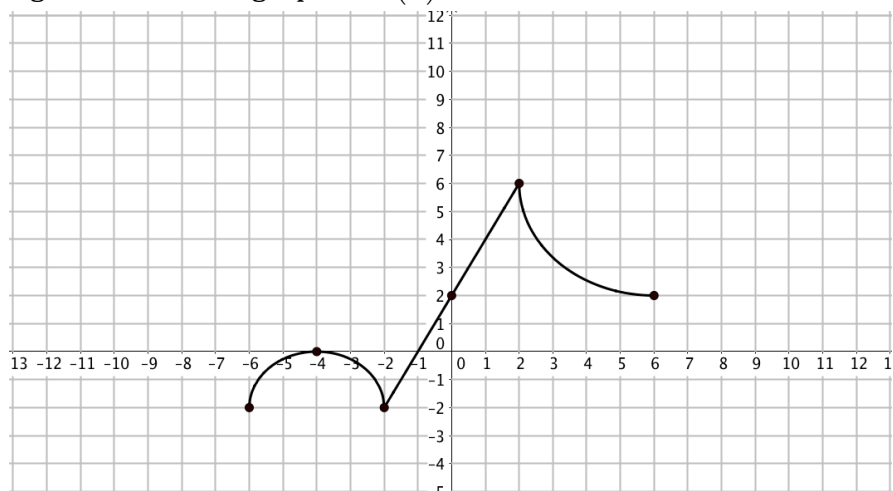
10a. Graph $h(-x)$



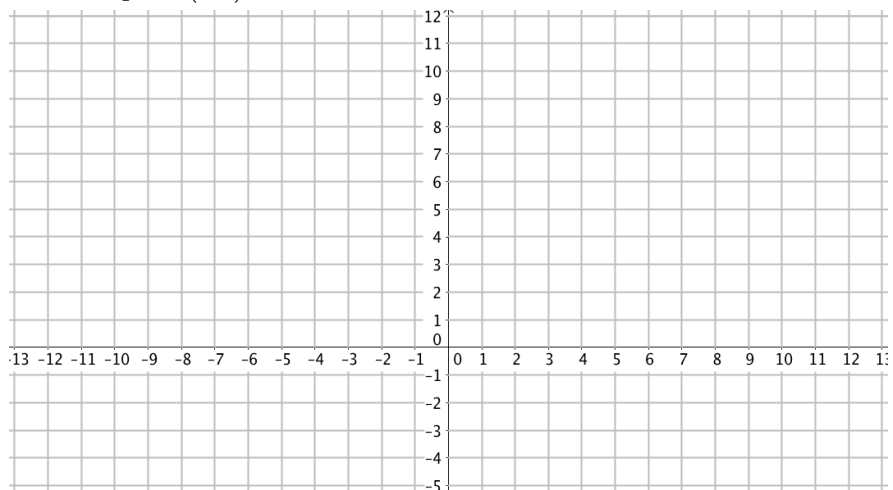
10b. Graph $h(x+2)+3$



Again, here is the graph of $h(x)$



10c. Graph $h(2x) - 1$



10d. Graph $h(|x|)$

