Student A Name _____ Course Days/Start Time _____

Student B Name _____

Student 3 Name _____ (if applicable)

Graphing Transformations Techniques - Team Project Packet AB

This packet is to be completed by Student A and Student B working together in the same place at the same time. It should be completed after Student A completes packet A and Student B completes packet B.

Problem AB1

Write the function whose graph is the graph of $y = \frac{1}{x}$, but is compressed towards the y-axis using an "a" value of 4.

Step 1: Identify the transformation type: _____

Step 2: Identify what you are being asked to create: (Circle One)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

Final Answer: _____

Problem AB2

Start with the function $y = \frac{1}{x}$ and make two consecutive transformations. First, compress it towards the y-axis using an "a" value of 4. Then, spin it around the y-axis. What is the resulting equation?

Step 1: Identify the transformation ***types***: _____

_____

Step 2: Identify what you are being asked to create: (Circle One)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

Final Answer: _____

Problem AB3

Write the function whose graph is the graph of $y = x$, but is stretched away from the y-axis using an "a" value of $\frac{1}{4}$.

Step 1: Identify the transformation type: _____

Step 2: Identify what you are being asked to create: (Circle One)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

Final Answer: _____

Problem AB4

Start with the function $y = x$ and make two consecutive transformations. First, stretch it away from the y-axis using an "a" value of $\frac{1}{4}$. Then, shift it right 3 units. What is the resulting equation?

Step 1: Identify the transformation ***types***: _____

_____

Step 2: Identify what you are being asked to create: (Circle One)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

Final Answer: _____

Problem AB5

Start with the function $y = \sqrt{x}$ and make two consecutive transformations. First, spin it around the y-axis. Then, spin it around the x-axis. What is the resulting equation?

Step 1: Identify the transformation ***types***: _____

_____

Step 2: Identify what you are being asked to create: (Circle One)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

Final Answer: _____

_____

_____

Problem AB6

Start with the function $y = |x|$ and make two consecutive transformations. First, shift it left 2 units. Then, shift it up 7 units. What is the resulting equation?

Step 1: Identify the transformation ***types***: _____

_____

Step 2: Identify what you are being asked to create: (Circle One)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

Final Answer: _____

_____

In the next four problems, you will transform the same graph/points in four different ways. Pay attention to the details. In problem…

…AB7 you will turn $\boxed{f(x)}$ into $\boxed{f(2x)}$

…AB8 you will turn $\boxed{f(x)}$ into $\boxed{f\left(\frac{1}{2}x\right)}$

…AB9 you will turn $\boxed{f(x)}$ into $\boxed{2f(x)}$

…AB10 you will turn $\boxed{f(x)}$ into $\boxed{\frac{1}{2}f(x)}$

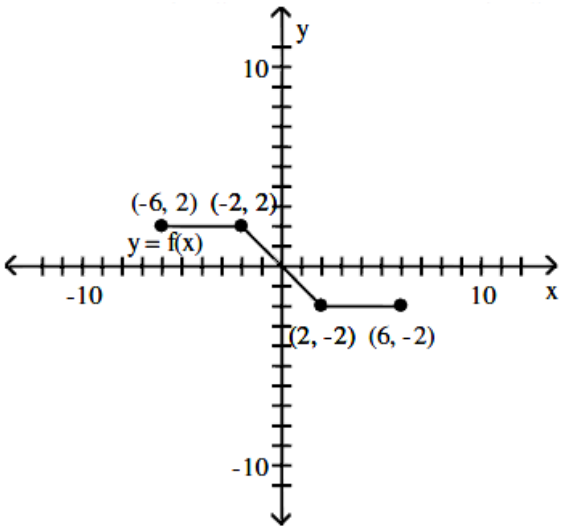
Be sure to learn how to recognize the four different transformations represented above.

Problem AB7

Consider the graph of $y = \boxed{f(x)}$ on the right.

Use the graph of f to complete the table and graph $y = \boxed{f(2x)}$ on the same grid.

$y = f(x)$		$y = f(2x)$	
x	y	x	y
-6	2		
-2	2		
0	0		
2	-2		
6	-2		



Step 1: Identify the transformation type: _____

Step 2: Identify what you are being asked to create: (Circle ***Two***)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

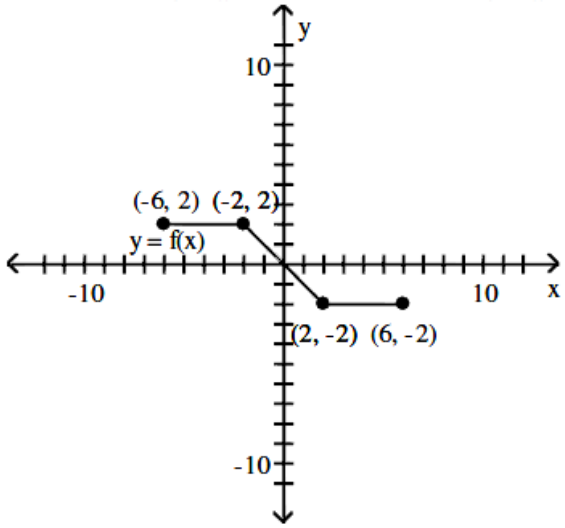
_____

Final Answer: (Complete the table above and create the new graph on the same grid)

Problem AB8

Consider the graph of $y = \boxed{f(x)}$ on the right.

Use the graph of f to complete the table and graph $y = \boxed{f\left(\frac{1}{2}x\right)}$ on the same grid.



$y = f(x)$		$y = f\left(\frac{1}{2}x\right)$	
x	y	x	y
-6	2		
-2	2		
0	0		
2	-2		
6	-2		

Step 1: Identify the transformation type: _____

Step 2: Identify what you are being asked to create: (Circle ***Two***)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

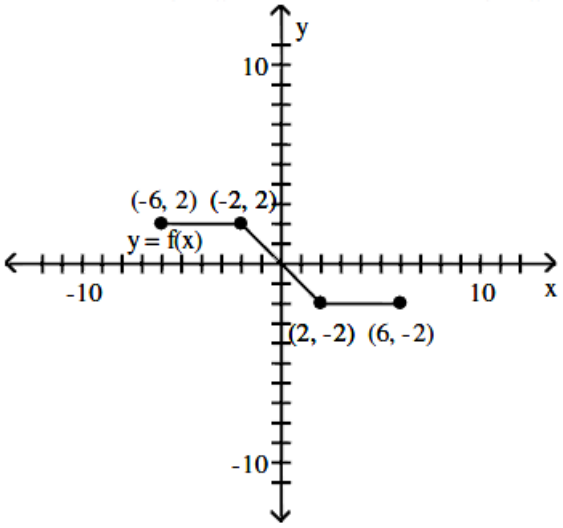
Final Answer: (Complete the table above and create the new graph on the same grid)

Problem AB9

Consider the graph of $y = \boxed{f(x)}$ on the right.

Use the graph of f to complete the table and graph $y = \boxed{2f(x)}$ on the same grid.

$y = f(x)$		$y = 2f(x)$	
x	y	x	y
-6	2		
-2	2		
0	0		
2	-2		
6	-2		



Step 1: Identify the transformation type: _____

Step 2: Identify what you are being asked to create: (Circle ***Two***)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

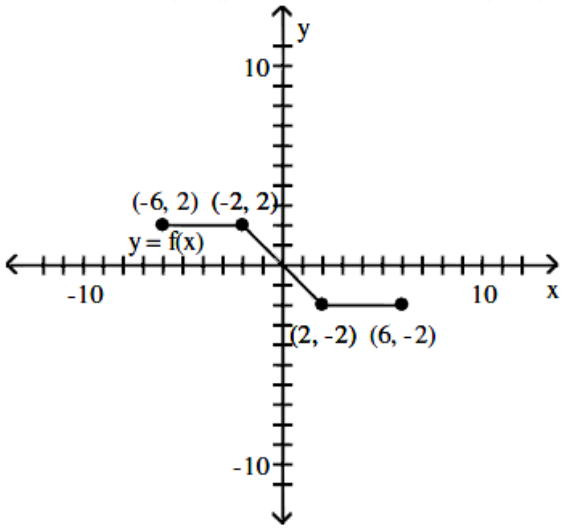
Final Answer: (Complete the table above and create the new graph on the same grid)

Problem AB10

Consider the graph of $y = \boxed{f(x)}$ on the right.

Use the graph of f to complete the table and graph $y = \boxed{\frac{1}{2}f(x)}$ on the same grid.

$y = f(x)$		$y = \frac{1}{2}f(x)$	
x	y	x	y
-6	2		
-2	2		
0	0		
2	-2		
6	-2		



Step 1: Identify the transformation type: _____

Step 2: Identify what you are being asked to create: (Circle ***Two***)

A function/equation A set of coordinates A graph

Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

_____

Final Answer: (Complete the table above and create the new graph on the same grid)