Name _____Course Days/Start Time _____

Graphing Transformations Techniques -- Team Project Packet B

This packet is to be completed by Student B working alone. It should be completed before Students A and B work together to complete Packet AB.

Problem B1

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Write the equation/function you get when you spin the graph of $y = \sqrt{x}$ around the y-axis.

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 B2

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Use your knowledge of Graphing Techniques: Transformations to complete the missing table of coordinates.

When graphed, an equation/function $\boxed{f(x)}$ contains the points…

x	-1	0	1	2	3
y	-1	0	1	8	27

Based on that data, what are the corresponding points on the equation/function $\boxed{f(-x)}$?

x					
y					

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: (Complete the blank table above)

Problem B3

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. When you start with the library function whose graph contains the points…

x	y
-1	1
0	0
1	1
2	2
3	3

…and you transform it into a new function whose graph contains the points…

x	y
1	1
0	0
-1	1
-2	2
-3	3

…this represents which type of transformation? (Circle one.)

$\boxed{A}$ horizontal (y-axis) reflection $\boxed{B}$ vertical (x-axis) reflection $\boxed{C}$ None of the other answers

Problem B4

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Use your knowledge of Graphing Techniques: Transformations to complete the missing table of coordinates.

When graphed, the equation $y = \sqrt[3]{x}$ contains the points…

x	-1	0	1	8	27
y	-1	0	1	2	3

What are the corresponding points when graphing $= -\sqrt[3]{x}$?

x					
y					

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

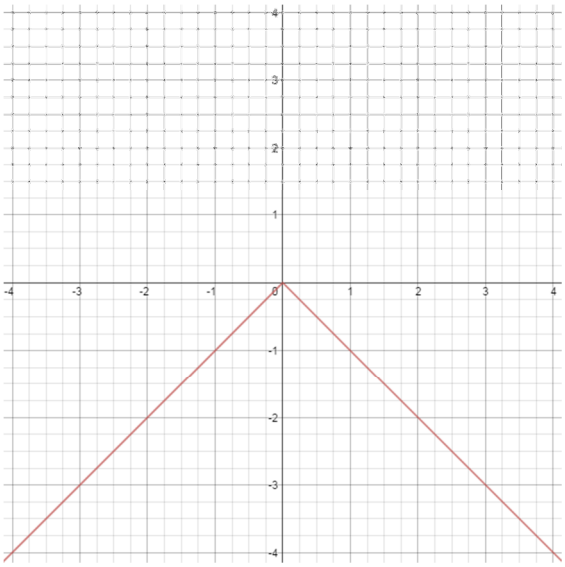
Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

Final Answer: (Complete the blank table above)

Problem B5

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. One of the library functions has been transformed to create the graph. Write the equation of the function that matches the graph.



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 B6

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. When you start with the library function whose graph contains the points…

x	y
-2	4
-1	1
0	0
1	1
2	4

…and you transform it into a new function whose graph contains the points…

x	y
-2	-4
-1	-1
0	0
1	-1
2	-4

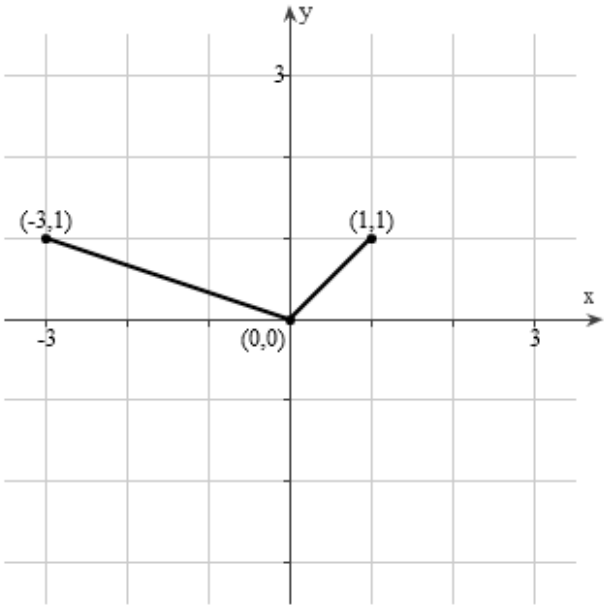
…this represents which type of transformation? (Circle one.)

$\boxed{A}$ horizontal (y-axis) reflection $\boxed{B}$ vertical (x-axis) reflection $\boxed{C}$ None of the other answers

Problem B7

Consider the graph of $\boxed{f(x)}$ on the right. Use the graph of f to complete the table and graph $P(x) = \boxed{-f(x)}$ on the same grid.

f(x)		*P(x) =- f(x)*	
x	*y*	*x*	*y*
-3	1		
0	0		
1	1		



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 B8

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Write the equation/function you get when you spin the graph of $y = x$ around the y-axis. Simplify.

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 B9

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Write the equation/function you get when you spin the graph of $y = x$ around the x-axis. Simplify.

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 B10

What do you notice about your Final Answers to *Problems B8* and *B9*? Why did this happen?

What did you notice?: _____

Why did this happen? (Fill in the blanks in the sentences below.)

For any line of the form $y = mx$ (where m is any real number), multiplying the right side by _____ will result in the same equation as replacing x with _____ because multiplication is commutative.

Problem B11

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Write the function whose graph is the graph of $y = \sqrt{x}$, 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 B12

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Use your knowledge of Graphing Techniques: Transformations to complete the missing table of coordinates.

When graphed, an equation/function $\boxed{f(x)}$ contains the points…

x	-4	-2	0	2	4
y	-64	-8	0	8	64

Based on that data, what are the corresponding points on the equation/function $\boxed{f(2x)}$?

x					
y					

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: (Complete the blank table above)

Problem B13

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. When you start with the library function whose graph contains the points…

x	y
-6	6
-3	3
0	0
3	3
6	6

…and you transform it into a new function whose graph contains the points…

x	y
-18	6
-9	3
0	0
9	3
18	6

…this represents which type of transformation? (Circle one.)

$\boxed{A}$ horizontal compression $\boxed{B}$ vertical compression $\boxed{C}$ horizontal stretch $\boxed{D}$ vertical stretch

Problem B14

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Use your knowledge of Graphing Techniques: Transformations to complete the missing table of coordinates.

When graphed, the equation $y = \sqrt[3]{x}$ contains the points…

x	-64	-8	0	8	64
y	-4	-2	0	2	4

What are the corresponding points when graphing $= 2\sqrt[3]{x}$?

x					
y					

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

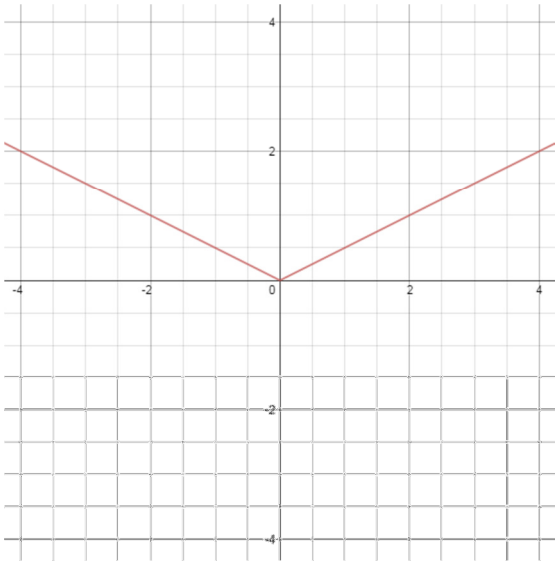
Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

Final Answer: (Complete the blank table above)

Problem B15

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. One of the library functions has been transformed to create the graph. Write the equation of the function that matches the graph.



(NOTE: There are two ways to solve this problem, and therefore there are two sets of correct answers. You only need to find one of them.)

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 B16

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. When you start with the library function whose graph contains the points…

x	y
-10	100
-5	25
0	0
5	25
10	100

…and you transform it into a new function whose graph contains the points…

x	y
-10	20
-5	5
0	0
5	5
10	20

…this represents which type of transformation? (Circle one.)

$\boxed{A}$ horizontal compression $\boxed{B}$ vertical compression $\boxed{C}$ horizontal stretch $\boxed{D}$ vertical stretch