Name _____Course Days/Start Time _____

Graphing Transformations Techniques -- Team Project Packet A

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

Problem A1

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 shifted to the right 7 units.

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 A2

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	-2	-1	0	1	2
y	-8	-1	0	1	8

Based on that data, what are the corresponding points on the equation/function $\boxed{f(x+3)}$?

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 A3

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	2
-1	1
0	0
1	1
2	2

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

x	y
0	2
1	1
2	0
3	1
4	2

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

$\boxed{A}$ horizontal shift right $\boxed{B}$ horizontal shift left $\boxed{C}$ vertical shift up $\boxed{D}$ vertical shift down

Problem A4

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	-8	-1	0	1	8
y	-2	-1	0	1	2

What are the corresponding points when graphing $= \sqrt[3]{x} - 1$?

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

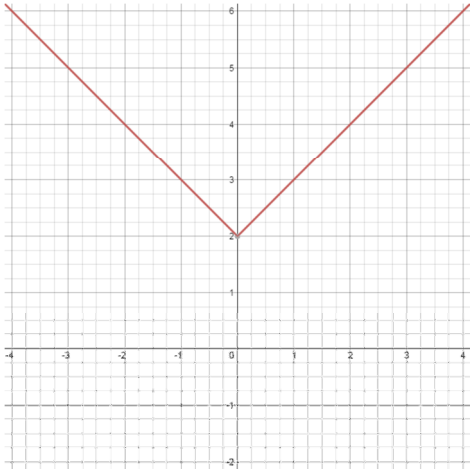
Step 3: Based on your answer to Step 2, write the associated characteristics that will help you solve the problem:

_____

Final Answer: (Complete the blank table above)

Problem A5

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 A6

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	3
-1	0
0	-1
1	0
2	3

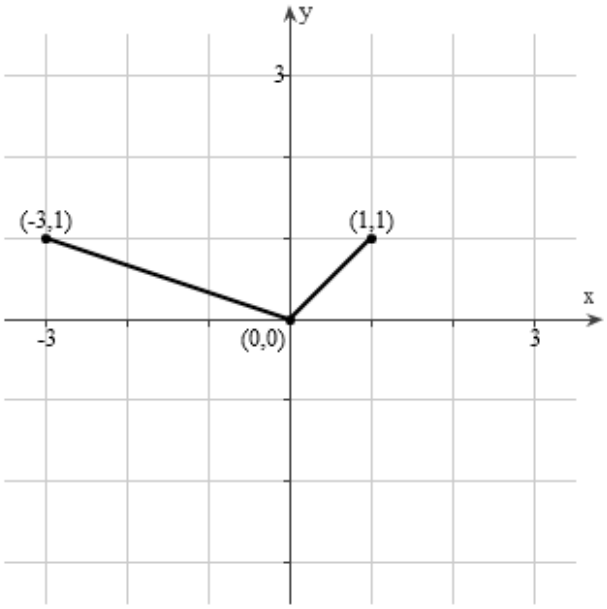
…this represents which type of transformation? (Circle one.)

$\boxed{A}$ horizontal shift right $\boxed{B}$ horizontal shift left $\boxed{C}$ vertical shift up $\boxed{D}$ vertical shift down

Problem A7

Consider the graph of $\boxed{f(x)}$ on the right. Use the graph of f to complete the table and graph $P(x) = \boxed{f(x-1)}$ on the same grid.

f(x)		*P(x) = f(x-1)*	
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 A8

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Write the function whose graph is the graph of $y = x$, but is shifted to the left 8 units.

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 A9

Use the "Graphing Techniques: Transformations -- Characteristics Worksheet" to solve the problem. Write the function whose graph is the graph of $y = x$, but is shifted up 8 units.

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 A10

What do you notice about your Final Answers to *Problems A8* and *A9*? Why did this happen?

What did you notice?: _____

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

A line extends forever in two directions. So when a line with a positive slope is moved to the left, it also appears to be moving _____. And when a line with a positive slope is moved up, it also appears to be moving _____.

Problem A11

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 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 A12

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 $\boxed{f(\frac{1}{2}x)}$?

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 A13

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
-2	6
-1	3
0	0
1	3
2	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 A14

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 $= \frac{1}{2}\sqrt[3]{x}$?

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:

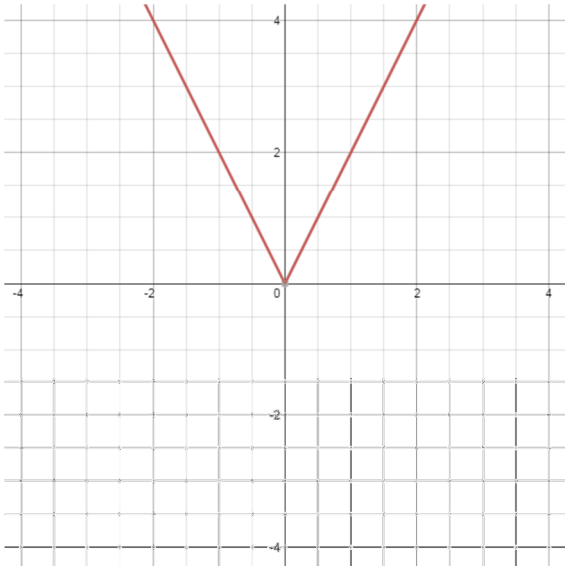
_____

Final Answer: (Complete the blank table above)

Problem A15

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 A16

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	500
-5	125
0	0
5	125
10	500

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

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