

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 $f(x)$ 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 $f(-x)$?

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.)

☐ A horizontal (y -axis) reflection ☐ B vertical (x -axis) reflection ☐ 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 $y = -\sqrt[3]{x}$?

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

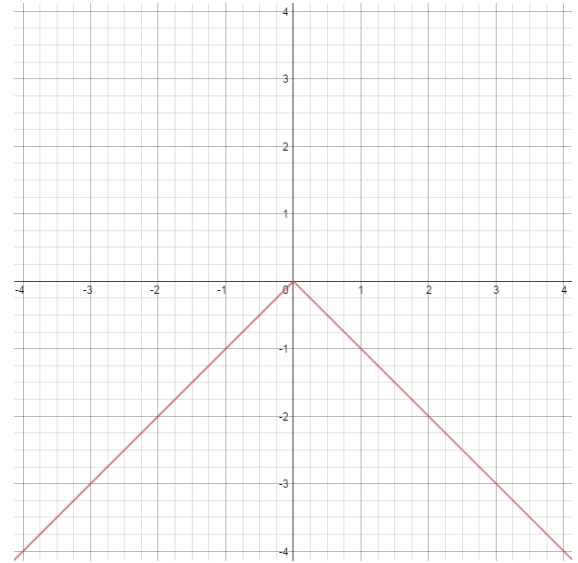
A graph

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.)

☐ A horizontal (y-axis) reflection ☐ B vertical (x-axis) reflection ☐ C None of the other answers

Problem B7

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

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

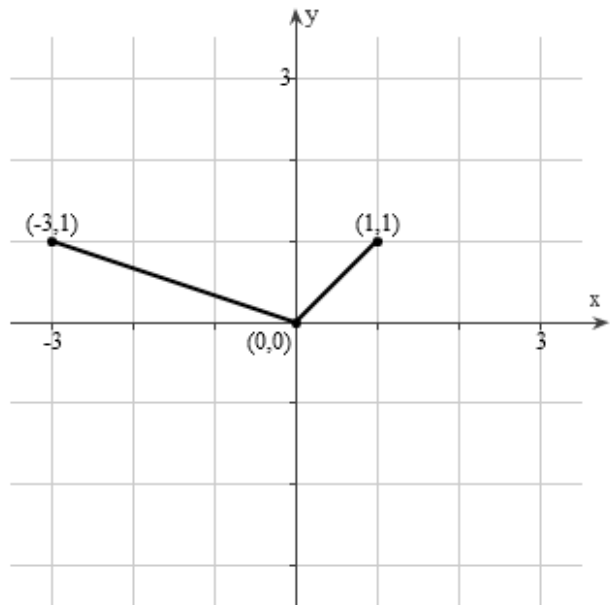


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Step 1: Identify the transformation type: _____

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 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 $f(x)$ 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 $f(2x)$?

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.)

☐ A horizontal compression ☐ B vertical compression ☐ C horizontal stretch ☐ 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 $y = 2\sqrt[3]{x}$?

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

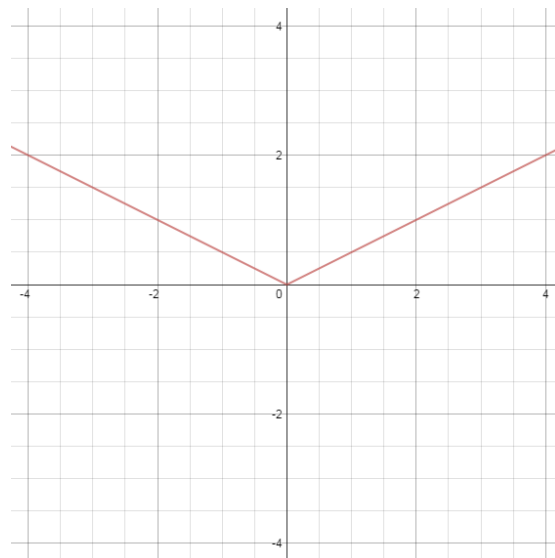
A graph

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.



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.)

☐ **A** horizontal compression ☐ **B** vertical compression ☐ **C** horizontal stretch ☐ **D** vertical stretch