keep scrolling to get a sneak peek!

Help your Algebra 2 students practice **writing equations of parent function transformations** from graphs and a set of transformations. Students will be eager to get the self-checking benefits from this circuit activity!

WRITING EQUATIONS OF FUNCTION TRANSFORMATIONS
Differentiated Circuit Worksheet

2 VERSIONS + ANSWER KEY INCLUDED

why do you need this?

Writing Equations of Parent Function Transformations Circuit

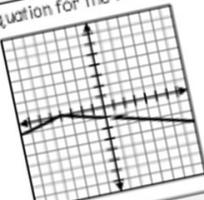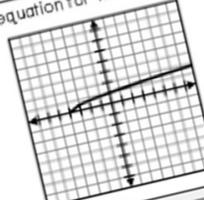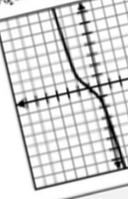✏️ It's self-checking! Your students will know if they are correct or not.

✏️ 2 differentiated versions for all students practice this essential math skill.

Writing Equations of Transformations *includes*:

Challenge: You're given the function $f(x) = -\sqrt[3]{x+2} + 4$. Apply the transformations below to create a new transformed function, $g(x)$.
- Reflect over the y-axis
- Shift the entire function right 1 unit

How are you feeling about this topic? Circle one:

Helpful Hints: Use these hints to help you solve the problems.

Absolute Value: $f(x) = |x|$

Quadratic: $f(x) = x^2$

Square Root: $f(x) = \sqrt{x}$

Cubic: $f(x) = x^3$

Cube Root: $f(x) = \sqrt[3]{x}$

Reflections:
- Over the x-axis: $-f(x)$
- Over the y-axis: $f(-x)$

Translations:
- Right h units: $(x - h)$
- Left h units: $(x + h)$
- Up k units: $f(x) + k$
- Down k units: $f(x) - k$

Dilations:
- Vertical stretch: $af(x)$ when $a > 1$
- Vertical compression: $af(x)$ when $0 < a < 1$
- Horizontal stretch: $f(bx)$ when $0 < b < 1$
- Horizontal compression: $f(bx)$ when $b > 1$

How are you feeling about this topic? Circle one:

✅ 10 self-checking problems

✅ a detailed answer key

✅ a standard version with an extension question

✅ a basic version with helpful hints section

✅ student self assessment

Writing Equations of Transformations

standards covered:
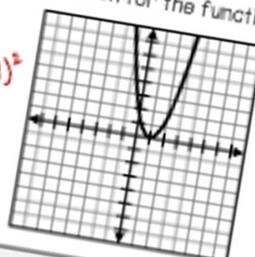
CCSS: HSF-BF.B.3

TEKs: A2.2.A

VA SOLs: F.AII.6.ab

WRITING EQUATIONS OF FUNCTION TRANSFORMATIONS

Previous Answer: $f(x) = \sqrt{\frac{1}{2}(x-3)}$

7. Write an equation for the function graphed below.

#__2__

$f(x) = \frac{3}{2}(x-1)^2$

Previous Answer: $f(x) = \frac{3}{2}\sqrt{-x+6}$

8. Write an equation of a cube root function that is horizontally compressed by a scale factor of 1/3 and shifted 1 unit up.

#__6__

$f(x) = \sqrt[3]{3x} + 1$

Previous Answer: $f(x) = -\frac{1}{4}|x+4|$

9. Write an equation of an absolute value function that is reflected over the x-axis and shifted 6 units down.

#__1__

$f(x) = -|x| - 6$

Previous Answer: $f(x) = -(x+2)^2$

10. Write an equation for the function graphed below.

#__5__
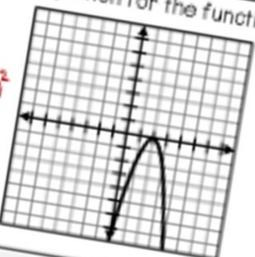
$f(x) = -2(x-2)^2$

Challenge: You're given the function $f(x) = -\sqrt[3]{x+2} + 4$. Apply the transformations below to create a new transformed function, g(x).
- Reflect over the y-axis
- Shift the entire function right 1 unit

$g(x) = -\sqrt[3]{-x+2} + 4$

how this circuit resource works

Then search for their answer on the worksheet. Once the answer is found, students complete the problem below it.

Students can track their path at the top.

Students start with the first question.

The last question they answer should lead back to problem #1 to "close" the circuit.

Name: _____ Date: _____

WRITING EQUATIONS OF FUNCTION TRANSFORMATIONS

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

$1 \rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow$ ____ $\rightarrow 1$

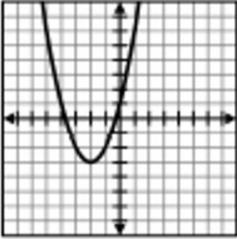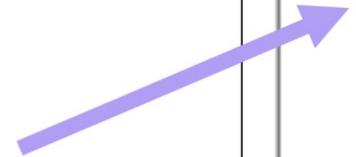| Previous Answer: $f(x) = 2(x - 5)^3$ #____	Previous Answer: $f(x) = \frac{1}{2}\sqrt{x + 4}$ #____
1. Write an equation for an absolute value function that reflects over the x-axis and shifts up 4 units.	2. Write an equation for the function graphed below.
Previous Answer: $f(x) = \frac{1}{4}\sqrt[3]{x + 2}$ #____	Previous Answer: $f(x) = -2(x + 1)^3$ #____
3. Write an equation for a square root function that is reflected over the y-axis and shifted left 1 unit.	4. Write an equation for a cubic function that is vertically stretched by a scale factor of 2 and shifts right 5 units.

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how to use this resource

This is a great activity to use when reviewing how to write equations of transformations of parent functions.

It can be used right after teaching the concept or as homework.

This is also a **substitute-friendly** assignment!

You may also *enjoy*...

TRANSFORMATIONS OF PARENT FUNCTIONS
Writing Equations Worksheets

Answer Key Included

FUNCTION TRANSFORMATIONS
Algebra 2 Guided Notes

Answer Key Included

IDENTIFY TRANSFORMATIONS OF PARENT FUNCTIONS FROM GRAPHS & EQUATIONS
Differentiated Circuit Worksheet

2 Versions + Answer Key Included

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check it out!

Rational Expression Operations - Addition & Subtraction

Directions: Answer each question and type the question number with the matching answer in the answer column to the right.

#	Question		Answer	Type the matching question numbers here
1	$\frac{5}{x} + \frac{3}{x+1}$		$\frac{2x+1}{x+2}$	
2	$\frac{2}{x+4} - \frac{x^2}{x^2-16}$		$-\frac{1}{x^2-1}$	
3	$\frac{x+2}{x^2+4x+4} + \frac{2x}{x+2}$		$\frac{2x^2+2x+5}{x^2+x-2}$	
4	$\frac{x}{x-2} + \frac{3}{x-1}$		$\frac{-x^2+2x-8}{x^2-16}$	
5	$\frac{x}{4x+8} - \frac{1}{x^2+2x}$		$\frac{8x+5}{x^2+1}$	
6	$\frac{x+2}{x-1} + \frac{x-1}{x+2}$		$\frac{x^2-3x+7}{x^2-4}$	
7	$\frac{2x+1}{x^2-4} + \frac{x-3}{x+2}$		$\frac{x^2+2x-6}{x^2-3x+2}$	
8	$\frac{x^2+2x}{x^2-1} - \frac{x+1}{x-1}$		$\frac{x-2}{4x}$	

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hey there!

My name is Malia and I'm passionate about making learning and practicing math fun. I love creating engaging math resources for my students and I hope your students enjoy this activity too!

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