keep scrolling to get a sneak peek!

Help your Algebra students practice **solving and graphing absolute value inequalities.** Students will be eager to get the self-checking benefits from this circuit activity!

ABSOLUTE VALUE INEQUALITIES

Differentiated Circuit Worksheet

Name: **Answer Key**

Date: _____

ABSOLUTE VALUE INEQUALITIES CIRCUIT

is a route that starts and ends at the same place. Start in the first box lab... blem. Search through the remaining boxes for the answer you got for ques... t question. Continue until you have completed the questions and you are ... tion. Record your path below.

→ ___ → ___ → ___ → ___ →

No Solution	# ___	Previous Answer: x > 12 or x < -12
		2. Solve and graph: $|2x + 1| > 7$
n:		
$|x - 3| < 5$		
→	←	
...er: x ...	# ___	Previous Answer: $-11 \le x \le 9$
		4. Solve and graph: $|x + 2| \ge 8$

SOLVING ABSOLUTE VALUE INEQUALITIES

Directions: A circuit is a route that starts and ends at the same place. St... 1 and solve the problem. Search through the remaining boxes for the ans... 1. Now complete that question. Continue until you have completed the qu... to the original question. Record your path below.

1 → **6** → **9** → **3** → **7** → **10** → **2** → **8** → ___

Previous Answer: No Solution		Previous Answer: All Re...
1. Solve and graph:	# **5**	2. Solve and graph:
$2|x - 4| + 3 < 15$		$-2 \quad 10 \le \frac{1}{7}|4x$
$\frac{2|x-4|}{2} < \frac{12}{2}$ $\frac{-3 \quad -3}{}$		$20 \le |4x$
$|x - 4| < 12 \leftarrow$ AND		$4x + 2 \ge 20$
$-12 < x - 4 < 12$		$4x \ge 18$
$\frac{+4 \quad +4 \quad +4}{-8 < x < 16}$		$\boxed{x \ge 9/2}$
⊕————————————⊕		↞∿∿∿∿—————
-8 16		-½
Previous Answer: $-7/2 \le x \le 3$		Previous Answer: $x \le -5$ or
3. Solve and graph:	# **9**	4. Solve and graph:
$|3x - 5| \le 7 \leftarrow$ AND		
$-7 \le 3x - 5 \le ...$		

2 versions + answer key included

Solving & Graphing Absolute Value Inequalities 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.

SOLVING ABSOLUTE VALUE INEQUALITIES CIRCUIT

Name: _____ Date: _____

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 → ___ → ___ → ___ → ___ → ___ →

Previous Answer: No Solution   #____

1. Solve and graph:
$2|x - 4| + 3 < 15$

Previous Answer: $-7/2 \le x \le 3$ #____

3. Solve and graph: $|3x - 5| \le 7$

Previous Answer: $x < -18$ or $x > 6$ #____

5. Solve and graph:
$-3 > |2x + 1|$

Previous...
2. Solv...

Previou...
4. Solv...

Previou...
6. Solve...

SOLVING ABSOLUTE VALUE INEQUALITIES CIRCUIT

Previous Answer: $x > 3$ or $x < -4$

Previous Answer: $1 \le x \le 7$ #____

7. Solve and graph: $|x - 6| > 2$

8. Solve and graph: $|x + 1| \le 10$

Previous Answer: $x > 8$ or $x < 4$

Previous Answer: $-9 \le x \le -1$ #____

9. Solve and graph: $|2x - 4| \ge 6$

10. Solve and graph: $|x| > 12$

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

Helpful steps:

Step 1: Isolate the absolute value first.
Step 2: Split into two equations
$|A| = B$ or $|A| = -B$

...k your answers for extraneous solutio...
...s cannot equal

Absolute Value Inequalities Circuit *includes*:

Challenge: Create an absolute value inequality of the form $a|x \pm b| \pm c \geq d$, where a, b, c, and d are real numbers, so that the solution results in **all real numbers**. Prove that the absolute value inequality makes the solution all real numbers.

How are you feeling about this topic? Circle one:

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

Helpful steps:

Step 1: Isolate the absolute value first.
Step 2: Split into two equations
$$|A| = B \text{ or } |A| = -B$$
Step 3: Check your answers for extraneous solutions.

Remember, absolute value functions cannot equal a negative number.

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

Solving & Graphing Absolute Value Inequalities

standards covered:

CCSS: HSA-REI.B.3

TEKs: A2.6.E, A2.6.F

VA SOLs: EI.AII.3a

how this circuit resource works

Students can track their path at the top.

Students start with the first question.

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

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

Name: _____   Date: _____

SOLVING ABSOLUTE VALUE INEQUALITIES CIRCUIT

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: No Solution #____	Previous Answer: All Real Numbers #____
1. Solve and graph: $2|x-4| + 3 < 15$	2. Solve and graph: $10 \leq \frac{1}{2}|4x + 2|$
Previous Answer: $-7/2 \leq x \leq 3$ #____	Previous Answer: $x \leq -5$ or $x \geq 11$ #____
3. Solve and graph: $|3x - 5| \leq 7$	4. Solve and graph: $8 < \frac{2}{3}|x + 6|$

how to use this resource

This is a great activity to use when reviewing solving and graphing absolute value inequalities.

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

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

Name: Answer Key **Date:** _____

SOLVING ABSOLUTE VALUE INEQUALITIES CIRCUIT

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.

$1 \to 6 \to 9 \to 3 \to 7 \to 10 \to 2 \to 8 \to 4 \to 5 \to 1$

Previous Answer: No Solution #5	Previous Answer: All Real Numbers #10
1. Solve and graph: $2|x-4| + 3 < 15$ $\frac{2|x-4|}{2} < \frac{12}{2}$ $|x-4| < 12$ $-12 < x-4 < 12$ $+4 \quad +4 +4$ $-8 < x < 16$ (number line at -8)	2. Solve and graph: OR

Previous Answer: $-7/2 \le x \le$	
3. Solve and graph: $|3x-5| \le 7$ $-7 \le 3x-5 \le 7$ $+5 \quad +5 +5$ $-2 \le 3x \le 12$ $\frac{-2}{3} \le x \le 4$ $-2/3 \le x \le 4$ (number line at -2/3)	

Previous Answer: $x < -18$ or	
5. Solve and graph: $-3 > |2x+1|$ $|2x+1| < -$ NO SOLU	

SOLVING ABSOLUTE VALUE INEQUALITIES CIRCUIT

Previous Answer: $1 \le x \le 7$ #3	Previous Answer: $x > 3$ or $x < -4$ #2
7. Solve and graph: $|x-6| > 2 \leftarrow$ OR $x-6 > 2$ or $x-6 < -2$ $+6 \ +6 \qquad +6 \ +6$ $x > 8$ or $x < 4$ (number line open circles at 4 and 8)	8. Solve and graph: $|x+1| \le 10 \leftarrow$ AND $-10 \le x+1 \le 10$ $-1 \quad -1 \ -1$ $-11 \le x \le 9$ (number line closed at -11 and 9)

Previous Answer: $-9 \le x \le -1$ #6	Previous Answer: $x > 8$ or $x < 4$ #7
9. Solve and graph: $|2x-4| \ge 6 \leftarrow$ OR $2x-4 \ge 6$ or $2x-4 \le -6$ $+4 \ +4 \qquad +4 \ +4$ $2x \ge 10$ $\quad 2x \le -2$ $\frac{2x}{2} \ge \frac{10}{2}$ $\quad \frac{2x}{2} \le \frac{-2}{2}$ $x \ge 5$ or $x \le -1$ (number line closed at -1 and 5)	10. Solve and graph: $|x| > 12 \leftarrow$ OR $x > 12$ or $x < -12$ (number line open at -12 and 12)

You may also *enjoy*...

SOLVING ABSOLUTE VALUE EQUATIONS & INEQUALITIES
Algebra 2 Guided Notes
Answer Key included

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Self-Checking

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hey there!

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