

keep scrolling to
get a sneak peek!

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

SOLVING & GRAPHING MULTISTEP INEQUALITIES

Differentiated Circuit worksheet

Answer Key

SOLVING MULTISTEP INEQUALITIES

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 to the original question. Continue until you have completed the question. Record your path below.

1 → 7 → 4 → 9 → 2 → 10 → 6 → 3 →

No Solution	#	Previous Answer: $x > 12$
1. Solve and graph: $-3 \leq 2(x + 4) - 7$		2. Solve and graph: $-4(2x - 3) + 5 > 17$
		Previous Answer: $x > 3$
3. Solve and graph: $5x + 8 \leq 3x + 14$	# 6	4. Solve and graph: $10 \geq -3(x + 5)$
		Previous Answer: $x \geq 4$
1. Solve and graph: $4x + 7 \leq 3x + 12$ $-3x -3x$ $x + 7 \leq 12$ $-7 -7$ $x \leq 5$	# 5	2. Solve and graph: $-3(2x - 4) + 5 > 17$ $-6x + 12 + 5 > 17$ $-6x + 17 > 17$ $-6x > 0$ $x < 0$
		Previous Answer: $x < 1$

Math with Ms. Rivera

2 versions + answer key included

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Why do you need this?

Solving & Graphing Multistep 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.

Name: _____ Date: _____

SOLVING MULTISTEP 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 → _____ → _____ → _____ → _____

Previous Answer: No Solution	# _____	Previous
1. Solve and graph: $5x - 3 \leq 2(x + 4) - 7$		2. Solve
Previous Answer: $x \geq 9$	# _____	Previous
3. Solve and graph: $7x + 4 \geq 2x + 19$		4. Solve
Previous Answer: $x \leq 3$	# _____	Previous
5. Solve and graph: $4x - 6 < 4x - 10$		6. Solve
Previous Answer: $x \leq 5$	# _____	Previous
7. Solve and graph: $-1 \geq 8 - 4x + 7$		8. Solve and graph: $-2x + 4 \geq 3x - 6$
Previous Answer: $x < -9$	# _____	Previous
9. Solve and graph: $3(x - 4) + 2 < 2(x - 6) + 3$		10. Solve and graph: $-5x + 8 > 3x +$

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

- Flip the inequality symbol when you multiply or negative number.

AND $< \geq$ OR $<, >$

Multistep Inequalities Circuit includes:

Challenge: Maria is saving money for a new laptop. She currently has \$150. Each week, she saves \$50 but also spends \$10 per week on snacks. Meanwhile, her friend, Alex starts with \$100 but saves \$40 per week and spends \$5 per week on subscriptions.

Write and solve an inequality to determine after how many weeks will Maria have at least as much money as Alex.

How are you feeling about this topic? Circle one:

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

- Flip the inequality symbol when you multiply or divide by a negative number.

AND OR
 \leq, \geq $<, >$

How are you feeling about this topic? Circle one:

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- ✓ 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 Multistep Inequalities

standards covered:

CCSS: HSA-CED.A.1, HSA-REI.B.3

TEKs: A1.5.B, A1.12.E

VA SOLs: EI.A.5.a

SOLVING MULTISTEP INEQUALITIES CIRCUIT

Previous Answer: $x \leq 5$ # **1**

7. Solve and graph:
 $-1 \geq 8 - 4x + 7$
 $-1 \geq 15 - 4x$
 $-16 \geq -4x$
 $-4 \geq -x$
 $4 \leq x$ $x \geq 4$

Previous Answer: $x \leq 3$ # **3**

8. Solve and graph:
 $-2x + 4 \geq 3x - 6$
 $+2x \quad +2x$
 $4 \geq 5x - 6$
 $+6 \quad +6$
 $10 \geq 5x$
 $2 \geq x$
 $x \leq 2$

Previous Answer: $x < -9$ # **4**

9. Solve and graph:
 $3(x - 4) + 2 < 2(x - 6) + 3$
 $3x - 12 + 2 < 2x - 12 + 3$
 $3x - 10 < 2x - 9$
 $-2x \quad -2x$
 $x - 10 < -9$
 $+10 \quad +10$
 $x < 1$

Previous Answer: $x \leq 1/2$ # **2**

10. Solve and graph:
 $-5x + 8 > 3x + 16$
 $+5x \quad +5x$
 $8 > 8x + 16$
 $-16 \quad -16$
 $-8 > 8x$
 $-1 > x$
 $x < -1$

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

- Flip the inequality symbol when you multiply or divide by a negative number.

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.

Name: _____ Date: _____

SOLVING MULTISTEP 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 → ___ → ___ → ___ → ___ → ___ → ___ → ___ → ___ → 1

Previous Answer: $x < 0$ # _____	Previous Answer: $x < 1$ # _____
1. Solve and graph: $4x + 7 \leq 3x + 12$ ←—————→	2. Solve and graph: $-3(2x - 4) \geq 9$ ←—————→
Previous Answer: $x \leq 4$ # _____	Previous Answer: $x \geq 4$ # _____
3. Solve and graph: $5x + 8 \leq 3x + 14$ ←—————→	4. Solve and graph: $-2(x + 5) + 3 > 11$ ←—————→

Students start with the first question.

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

how to use this resource

This is a great activity to use when reviewing solving absolute value equations.

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

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

Name: **Answer Key** _____ Date: _____


SOLVING MULTISTEP 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 → **7** → **4** → **9** → **2** → **10** → **6** → **3** → **8** → **5** → 1


Previous Answer: $x < 0$ # 5	Previous Answer: $x < 1$ # 9
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1. Solve and graph:
 $4x + 7 \leq 3x + 12$
 $-3x -3x$
 $x + 7 \leq 12$
 $-7 -7$
 $x \leq 5$



Previous Answer: $x \leq 4$


3. Solve and graph:
 $5x + 8 \leq 3x + 14$
 $-3x -3x$
 $2x + 8 \leq 14$
 $-8 -8$
 $2x \leq 6$
 $\frac{2x}{2} \leq \frac{6}{2}$
 $x \leq 3$




Previous Answer: $x \leq 2$

5. Solve and graph:
 $6x - 4 < 4x - 4$
 $-9x -4x$
 $2x - 4 < -4$
 $+4 +4$
 $2x < 0$
 $\frac{2x}{2} < \frac{0}{2}$
 $x < 0$


7. Solve and graph:
 $-6 > -5(x - 1) + 4$
 $-6 > -5x + 5 + 4$
 $-6 > -5x + 9$
 $-9 -9$
 $-15 > -5x$
 $\frac{-15}{-5} > \frac{-5x}{-5}$
 $x > 3$




8. Solve and graph:
 $-2x + 7 \geq 4x - 11$
 $+2x +2x$
 $7 \geq 6x - 11$
 $+11 +11$
 $18 \geq 6x$
 $\frac{18}{6} \geq \frac{6x}{6}$
 $x \leq 3$



9. Solve and graph:
 $4(x + 3) - 5 > 3(x + 6) + 1$
 $4x + 12 - 5 > 3x + 18 + 1$
 $4x + 7 > 3x + 19$
 $-3x -3x$
 $x + 7 > 19$
 $-7 -7$
 $x > 12$



10. Solve and graph:
 $-7x + 12 \geq 3x - 8$
 $+7x +7x$
 $12 \geq 10x - 8$
 $+8 +8$
 $20 \geq 10x$
 $\frac{20}{10} \geq \frac{10x}{10}$
 $x \leq 2$



You may also enjoy ...

SOLVING & GRAPHING MULTISTEP INEQUALITIES Worksheet

Answer Key Period: ___ Date: ___

Solving Multistep Inequalities
Directions: Solve each inequality and graph your solution. Show your work.

1. $4x + 5 < 4x + 5$
 $x < 3$

2. $10 - 12x > -5x - 1$
 $x < 2$

3. $3 \leq 2x + 15$
 $x < 3$

4. $-3 - 6x \geq -12$
 $x < 2$

5. $12 > 6x$
 $x < 2$

6. $3 > 6x - 9$
 $x < 2$

7. $-12 + x < -3(x + 4)$

8. $-5(3x - 3) + 1 < 1$

9. $-6 + x < 3(x - 4) - 3x$

10. $8(2x - 3) < 16$

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SOLVING INEQUALITIES VARIABLES BOTH SIDES

Football Task Cards

SOLVING MULTISTEP INEQUALITIES TASK CARDS
Name: ___ Date: ___

Directions: Solve each inequality and show your work in the box.

A $3x + 6 > 2x + 9$
Solve the inequality.

H $5(2x - 3) \leq 9x + 15$
Solve the inequality.

K $16x - 30 < 8x - 3(2x + 1)$
Solve the inequality.

L $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

M $10x - 15 \leq 9x + 15$
Solve the inequality.

N $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

O $-4x + 3 > 2x - 9$
Solve the inequality.

P $6x + 10 + 4x \geq 3x - 20$
Solve the inequality.

Q $2x + 10 \geq 3x - 20$
Solve the inequality.

R $10 \geq 5x - 20$
Solve the inequality.

S $30 \geq 5x$
Solve the inequality.

T $14x - 10 < -3$
Solve the inequality.

U $14x < 7$
Solve the inequality.

V $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

W $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

X $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

Y $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

Z $10x - 10 < 8x - 5(2x + 1)$
Solve the inequality.

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Recording Sheet & Answer Key Included

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MULTISTEP INEQUALITIES VARIABLES ON BOTH SIDES

Question	Answer
$2x + 3 \leq x + 5$	
$x + 9 < -2x + 3$	
$x + 10 > 2(3x - 5)$	
$-8x + 2x - 16 < -5x + 7x$	
$2(-x - 5) < 2x - 5$	
$3(2x - 1) \geq 10x - 11$	
$-5x - 6x \leq 8 - 8x - x$	
$3x - 5 > 2x + 3x - 7$	
$-7(2x - 5) + 12 > -4x - 13$	
$-3(x - 10) + 18 \geq x - 24$	

Directions: Solve each multistep inequality. Use the following symbols when writing your answers: $>$, $<$, \geq , \leq , \neq . Do not use spaces in your answer.

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Self-Checking

Free Algebra Activities!

When you join my email list, I'll send you a free Algebra print & digital self-checking activities. There is an Algebra 1 and Algebra 2 version!

You'll also be getting exclusive freebies and content to help your Algebra students be successful this school year!

check it out!

The image shows a collage of algebra worksheets and a digital tablet. The worksheets include:

- Answer Key** for **ADDING & SUBTRACTING RATIONAL EXPRESSIONS** and **SOLVING SYSTEMS OF EQUATIONS**.
- MULTIPLYING & DIVIDING RATIONAL EXPRESSIONS** worksheet with problems like $2. \frac{x}{x+4} \cdot \frac{x^2}{x^2-16}$.
- SOLVING SYSTEMS OF EQUATIONS** worksheet with problems like $2. 2x - 6y = -18$ and $x = 3y - 4$.

The digital tablet displays a self-checking activity titled **Rational Expression Operations - Addition & Subtraction**. The directions are: "Answer each question and type the question number with the matching answer in the answer column to the right." The activity consists of a table with 8 questions and 8 answers, with a path of colored lines connecting the questions to their corresponding answers.

#	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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