

keep scrolling to get a sneak peek!

Help your Algebra students practice **solving systems of equations using all methods.**

This bundle of circuit worksheets will help your students review these while also being able to self check their work!

SYSTEM OF EQUATIONS DIFFERENTIATED CIRCUITS

Unit Worksheet Bundle

The image shows three overlapping circuit worksheets. Each worksheet has a path of numbers to follow and a 'Previous Answer' for self-checking. The solutions are handwritten in red ink.

Worksheet 1 (Left): Solving Systems of Equations by Graphing. Problem 7: Solve the system of equations by graphing. $y = -x + 2$, $x + y = 2$. Solution: Infinite Solutions.

Worksheet 2 (Middle): Solving Systems of Equations by Substitution. Problem 8: Solve the system of equations by substitution. $y = 2x - 2$, $x = y - 1$. Solution: $(3, 4)$.

Worksheet 3 (Right): Solving Systems of Equations by Elimination. Problem 5: Solve the system of equations by elimination. $3x + 2y = 8$, $4x - 2y = 6$. Solution: $(2, 1)$.



3 TOPICS + 2 VERSIONS EACH + ANSWER KEYS

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Why do you need this?

Solving Systems of Equations Circuit Worksheets



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 SYSTEMS OF EQUATIONS BY GRAPHING CIRCUIT

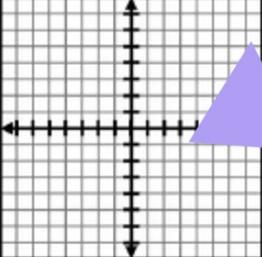
Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the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

1 → _____ → _____ → _____ → _____ → _____

Previous Answer: No Solution	# _____	Previous Answer: (-3, 3)
1. Solve the system of equations by graphing. $2x + y = 7$ $x + y = 5$	 Solution: _____	7. Solve the system of equations by elimination. $8x + 7y = 4$ $6x + 5y = -2$ $2x + 2y = 6$ $-24x - 21y = -12$ $+ 24x + 20y = -8$ $-y = -20$ $y = 20$ $6x + 5(20) = -2$ $6x + 100 = -2$ $-100 = -102$ $6x = -102$ $x = -17$ Solution: $(-17, 20)$
2. Solve the system of equations by graphing. $x + 2y = 4$ $x - 2y = 2$	 Solution: _____	8. Solve the system of equations by elimination. $7x + 6y = -20$ $4x - 6y = -2$ $11x = -22$ $x = -2$ $4(-2) - 6y = -2$ $-8 - 6y = -2$ $+8 + 6y = +8$ $-6y = 6$ $y = -1$ Solution: $(-2, -1)$
3. Solve the system of equations by graphing. $-x + y = -7$ $x + y = -3$	 Solution: _____	9. Solve the system of equations by elimination. $8x + 5y = 25$ $-2x + 5y = 25$ $-3x - 4y = -25$ $-9x = 0$ $x = 0$ $-2(0) + 5y = 25$ $5y = 25$ $y = 5$ Solution: $(0, 5)$
4. Solve the system of equations by graphing. $x - y = 0$ $x + y = 0$	 Solution: _____	10. Solve the system of equations by elimination. $4x + 6y = 1$ $-5x + 6y = -11$ $-7x - 4y = -1$ $-12x = -12$ $x = 1$ $-5(1) + 6y = -11$ $-5 + 6y = -11$ $+5 + 6y = -6$ $6y = -11$ $y = -11/6$ Solution: $(1, -1)$
5. Solve the system of equations by graphing. $3x + 2y = 0$ $x - y = 5$	 Solution: _____	Challenge: Without actually solving the system, answer the following: EQ1 $3x + 4y = 12$ EQ2 $6x + 8y = 24$ a) What do you notice about the relationship between these two equations? EQ2 is double EQ1. b) What does this tell you about the type of solution the system has? E... Going to produce the same infinite solutions.

Solving Systems of Equations Circuit *includes:*

Challenge: The line given on the graph below is $3x - 2y = 8$. The second line of the system passes through the point $(5, -3)$ and is perpendicular to the line given. Find the equation of the second line in the system and write it in standard form. Then solve the system of equations by graphing.



How are you feeling about this topic? Circle one:

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

Step 1: Get each equation into slope-intercept form when possible.
Step 2: Plot the y-intercept first.
Step 3: Use the slope to plot the other points on the line.
Step 4: Graph both lines and find where they intersect.
Step 5: Check your point of intersection with BOTH equations to verify that it is the solution of the system.

Same slope, Different y-intercepts = Parallel Lines = No solutions
Different slope, Different y-intercepts = Intersecting Lines = One Solution
Same slope, Same y-intercepts = Same Line = Infinite Solutions

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 Systems of Equations Circuit

skills covered:

Graphing

Substitution

Elimination

SOLVING SYSTEMS OF EQUATIONS BY GRAPHING CIRCUIT

Previous Answer: (4, 3) # **5**

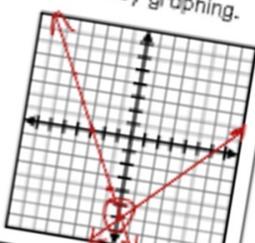
7. Solve the system of equations by graphing.
 $y = x - 1$
 $2x - y = -1$
 $y = 2x + 1$



Solution: $(-2, -3)$

Previous Answer: (2, -1) # **4**

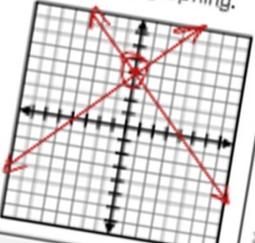
8. Solve the system of equations by graphing.
 $y = x - 6$
 $y = -2x - 6$



Solution: $(0, -6)$

Previous Answer: (-3, 4) # **3**

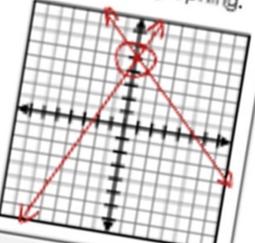
9. Solve the system of equations by graphing.
 $y = x + 4$
 $y = -x + 4$



Solution: $(0, 4)$

Previous Answer: Infinite Solutions # **2**

10. Solve the system of equations by graphing.
 $y = -x + 5$
 $2x - y = -5$



Solution: $(0, 5)$

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

- Step 1: Get each equation into slope-intercept form when possible.
- Step 2: Plot the y-intercept first.
- Step 3: Use the slope to plot the other points on the line.
- Step 4: Graph both lines and find where they intersect.
- Step 5: Check your answer by substituting the solution into both equations.

Solving Systems of Equations Circuit

standards covered:

CCSS: 8.EE.C.8.ab

TEKs: A1.5.C

VA SOLs: EI.A.4.d

Name: **Answer Key** Date: _____

SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION 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 → **4** → **6** → **10** → **3** → **7** → **2** → **9** → **8** → **5** → 1

<p>Previous Answer: (-4, 0) # 5</p> <p>1. Solve the system of equations by elimination.</p> $\begin{array}{r} 3x + 2y = 8 \\ 4x - 2y = 6 \\ \hline 7x = 14 \\ 7 \\ \hline x = 2 \end{array}$ $\begin{array}{r} 3(2) + 2y = 8 \\ 6 + 2y = 8 \\ -6 \\ \hline 2y = 2 \\ 2 \\ \hline y = 1 \end{array}$ <p>Solution: (2, 1)</p>	<p>Previous Answer: (4, 0) # 7</p> <p>2. Solve the system of equations by elimination.</p> $\begin{array}{r} x + y = -1 \\ 3x - 2y = 7 \\ \hline 2x + 2y = -2 \\ \hline 5x = 5 \\ 5 \\ \hline x = 1 \end{array}$ $\begin{array}{r} x + y = -1 \\ -1 + y = -1 \\ \hline y = -2 \end{array}$ <p>Solution: (1, -2)</p>
<p>Previous Answer: (1, -1) # 10</p> <p>3. Solve the system of equations by elimination.</p> $\begin{array}{r} x + 2y = 1 \\ 3x - 2y = -13 \\ \hline 4x = -12 \\ 4 \\ \hline x = -3 \end{array}$ $\begin{array}{r} -3 + 2y = 1 \\ +3 \\ \hline 2y = 4 \\ 2 \\ \hline y = 2 \end{array}$ <p>Solution: (-3, 2)</p>	<p>Previous Answer: (2, 1) # 1</p> <p>4. Solve the system of equations by elimination.</p> $\begin{array}{r} x + y = -1 \\ 2x - y = 1 \\ \hline 3x = 0 \\ 3 \\ \hline x = 0 \end{array}$ $\begin{array}{r} x + y = -1 \\ 0 + y = -1 \\ \hline y = -1 \end{array}$ <p>Solution: (0, -1)</p>
<p>Previous Answer: (0, -1) # 4</p> <p>5. Solve the system of equations by elimination.</p>	<p>Previous Answer: (0, -1) # 8</p> <p>6. Solve the system of equations by elimination.</p>

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.



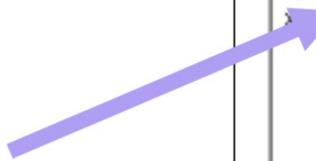
Name: _____ Date: _____

SOLVING SYSTEMS OF EQUATIONS BY GRAPHING 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: No Solution # _____	Previous Answer: (-2, -4) # _____
1. Solve the system of equations by graphing. $2x + y = 7$ $y = 5$ Solution: _____	2. Solve the system of equations by graphing. $x + 2y = 2$ $x - 2y = 6$ Solution: _____
Previous Answer: (-1, -1) # _____	Previous Answer: (5, 2) # _____
3. Solve the system of equations by graphing. $-x + y = -7$ $x + y = -3$ Solution: _____	4. Solve the system of equations by graphing. $x - y = 0$ $x + y = 0$ Solution: _____



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

SOLVING SYSTEMS OF EQUATIONS BY SUBSTITUTION CIRCUIT

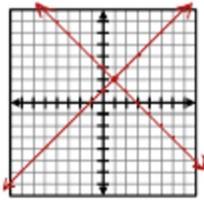
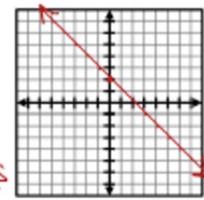
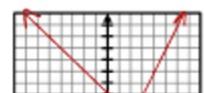
Previous Answer: No Solution # _____ 7. Solve the system of equations by substitution. $x = 3y + 10$ $2x - y = 10$ Solution: _____	Previous Answer: (-5, 2) # _____ 8. Solve the system of equations by substitution. $y = x - 3$ $y = -x - 3$
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SOLVING SYSTEMS OF EQUATIONS BY GRAPHING CIRCUIT

Name: Answer Key **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 → **6** → **3** → **9** → **2** → **10** → **4** → **8** → **5** → **7** → 1

Previous Answer: (-2, -3) # 7 1. Solve the system of equations by graphing. $y = x + 1$ $y = -x + 3$ Solution: <u>(1, 2)</u> 	Previous Answer: (0, 4) # 9 2. Solve the system of equations by graphing. $y = -x + 2$ $x + y = 2$ $y = -x + 2$ Infinite Solutions Solution: _____ 
Previous Answer: No Solution # 6 3. Solve the system of equations by graphing. $y = x + 7$ $y = -2x - 2$ 	Previous Answer: (0, 5) # 10 4. Solve the system of equations by graphing. $y = 2x - 5$ $y = -x + 1$ 

SOLVING SYSTEMS OF EQUATIONS BY SUBSTITUTION CIRCUIT

Previous Answer: (1, 5) # _____

9. Solve the system of equations by substitution.
 $x = 2y + 4$
 $x = -2y - 4$

 Solution: _____

Helpful Hints: Use these hints

- Step 1: Look for a variable that appears in only one equation.
- Step 2: Substitute that expression into the other equation.
- Step 3: Solve for one variable.
- Step 4: Check your point with both equations.

This is a great activity to use when reviewing how to solve systems of equations.

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

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



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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