

keep scrolling to get
a sneak peek!

Help your Algebra 1 students
practice **solving systems of
equations by elimination** given
points. Students will be eager to
get the self-checking benefits
from this circuit activity!

SYSTEMS OF EQUATIONS BY ELIMINATION

Differentiated Circuit Worksheet

DATE: _____

SYSTEMS OF EQUATIONS BY ELIMINATION 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. Continue until you have completed the questions and you are back at question 1. Record your path below.

6 → 10 → 3 → 7 → 2 → 9 → 8 → 5 → 1

Problem	Previous Answer
1. Solve the system of equations by elimination. $\begin{aligned} 2x + 2y &= 8 \\ x + 2y &= 8 \\ \underline{-x} & \quad \underline{-6} \\ 2y &= 2 \\ \underline{2} & \quad \underline{2} \\ y &= 1 \end{aligned}$	(-4, 0)
2. Solve the system of equations by elimination. $\begin{aligned} (x + y = -1) \cdot 2 & \quad 1 + y = -1 \\ 3x - 2y = 7 & \quad -1 \quad -1 \\ \underline{2x + 2y = -2} & \quad \underline{-1} \quad \underline{-1} \\ 5x &= 5 \\ \underline{5} & \quad \underline{5} \\ x &= 1 \end{aligned}$	(4, 0)
3. Solve the system of equations by elimination. $\begin{aligned} 6x + 4y &= 20 \\ 9x - 2y &= 14 \end{aligned}$	(-4, 0)
4. Solve the system of equations by elimination. $\begin{aligned} 4x - 3y &= 10 \\ 5x + 2y &= 1 \end{aligned}$	(-17, 2)
5. Solve the system of equations by elimination. $\begin{aligned} 3x + 4y &= 3 \\ 6x - 4y &= -30 \end{aligned}$	(1, -1)
6. Solve the system of equations by elimination. $\begin{aligned} x + y &= -1 \\ o + y &= -1 \end{aligned}$	(2, 1)
7. Solve the system of equations by elimination.	(2, 2)



2 versions + answer key included

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Why do you need this?

Solving Systems of Equations by Elimination 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 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 → _____ → _____ → _____ → _____ → _____

Previous Answer: (-4, 0)	# _____	Previous Answer: (0, 5)
1. Solve the system of equations by elimination. $3x + 2y = 8$ $4x - 2y = 6$	2. Solve the system of equations by elimination. $x + y = -1$ $3x - 2y = 1$	7. Solve the system of equations by elimination. $4x + 5y = 16$ $2x + 3y = 8$
Solution: _____	Solution: _____	Solution: _____
Previous Answer: (1, -1)	# _____	Previous Answer: (-3, 2)
3. Solve the system of equations by elimination. $x + 2y = 1$ $3x - 2y = -13$	4. Solve the system of equations by elimination. $x + y = -1$ $2x - y = 1$	8. Solve the system of equations by elimination. $2x + 5y = -19$ $x - 5y = 13$
Solution: _____	Solution: _____	Solution: _____
Previous Answer: (-2, -3)	# _____	Previous Answer: (3, -2)
5. Solve the system of equations by elimination. $3x + 2y = -12$ $5x - 2y = -20$	6. Solve the system of equations by elimination. $2x + 3y = 1$ $4x - 3y = 1$	9. Solve the system of equations by elimination. $2x - y = -5$ $4x + 3y = 15$
Solution: _____	Solution: _____	Solution: _____

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

Step 1: Line up both equations in $Ax + By = C$.

Step 2: Decide which variable to eliminate:

- If coefficients already match, then add or subtract.
- If coefficients don't match, then multiply one or both equations to make them match.

Systems of Equations by Elimination Circuit *includes:*

Challenge: Without actually solving the system,

$$\begin{array}{r} 3x + 4y = 12 \\ 6x + 8y = 24 \end{array}$$

answer the following:

a) What do you notice about the relationship between these two equations?

b) What does this tell you about the type of solution the system has? Explain your reasoning.

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: Line up both equations in $Ax + By = C$.

Step 2: Decide which variable to eliminate:

- If coefficients already match, then add or subtract.
- If coefficients don't match, then multiply one or both equations first.

Step 3: Once the variable is eliminated, solve for the other.

Step 4: Check your point with BOTH equations to verify that it is the solution of the system.

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

Systems of Equations by Elimination Circuit

standards covered:

CCSS: 8.EE.C.8.ab

TEKs: A1.5.C

VA SOLs: EI.A.4.d

SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION CIRCUIT

Previous Answer: $(-3, 2)$ # **3**

7. Solve the system of equations by elimination.

$$\begin{array}{r} 4x + 5y = 16 \\ (2x + 3y = 8)(-2) \\ \hline 2x + 3(0) = 8 \\ 2x = 8 \\ \hline 2 \\ \hline x = 4 \end{array}$$
$$\begin{array}{r} 4x + 5y = 16 \\ -4x - 6y = -16 \\ \hline -y = 0 \\ \hline y = 0 \end{array}$$

Solution: $(4, 0)$

Previous Answer: $(0, 5)$ # **9**

8. Solve the system of equations by elimination.

$$\begin{array}{r} 2x + 5y = -19 \\ x - 5y = 13 \\ \hline 3x = -6 \\ \hline 3 \\ \hline x = -2 \end{array}$$
$$\begin{array}{r} -2 - 5y = 13 \\ +2 \quad +2 \\ \hline -5y = 15 \\ \hline -5 \\ \hline y = -3 \end{array}$$

Solution: $(-2, -3)$

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

9. Solve the system of equations by elimination.

$$\begin{array}{r} (2x - y = -5)3 \\ 4x + 3y = 15 \\ \hline 6x - 3y = -15 \\ \hline 10x = 0 \\ \hline 10 \\ \hline x = 0 \end{array}$$
$$\begin{array}{r} 2(0) - y = -5 \\ -y = -5 \\ \hline -1 \\ \hline y = 5 \end{array}$$

Solution: $(0, 5)$

Previous Answer: $(3, -2)$ # **6**

10. Solve the system of equations by elimination.

$$\begin{array}{r} 2x + 3y = -1 \\ x - 3y = 4 \\ \hline 3x = 3 \\ \hline 3 \\ \hline x = 1 \end{array}$$
$$\begin{array}{r} 1 - 3y = 4 \\ -1 \quad -1 \\ \hline -3y = 3 \\ \hline -3 \\ \hline y = -1 \end{array}$$

Solution: $(1, -1)$

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

Step 1: Line up both equations in $Ax + By = C$.

Step 2: Decide which variable to eliminate.

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 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 → ___ → ___ → ___ → ___ → ___ → ___ → ___ → ___ → ___ → 1

Previous Answer: (-4, 0) # _____	Previous Answer: (-17, 20) # _____
1. Solve the system of equations by elimination. $6x + 4y = 20$ $4x - 2y = 14$ Solution: _____	2. Solve the system of equations by elimination. $4x - 3y = 10$ $5x + 2y = 1$ Solution: _____
Previous Answer: (1, -1) # _____	Previous Answer: (2, 2) # _____
3. Solve the system of equations by elimination. $3x + 4y = 3$ $6x - 4y = -30$ Solution: _____	4. Solve the system of equations by elimination. $5x + 3y = -3$ $-10x + 6y = -6$ 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

This is a great activity to use when reviewing how to solve systems of equations of equations using the elimination method.

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

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

SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION CIRCUIT

Previous Answer: (-3, 2) # <u>3</u> 7. Solve the system of equations by elimination. $\begin{array}{r} 4x + 5y = 16 \\ (2x + 3y = 8)(-2) \\ \hline 2x + 3(0) = 8 \\ 2x = 8 \\ \hline x = 4 \end{array}$ $\begin{array}{r} 4x + 5y = 16 \\ -4x - 6y = -16 \\ \hline -y = 0 \\ y = 0 \end{array}$ Solution: <u>(4, 0)</u>	Previous Answer: (0, 5) # <u>9</u> 8. Solve the system of equations by elimination. $\begin{array}{r} 2x + 5y = -19 \\ x - 5y = 13 \\ \hline 3x = -16 \\ \hline x = -2 \end{array}$ $\begin{array}{r} -2 - 5y = 13 \\ +2 \quad +2 \\ \hline -5y = 15 \\ \hline y = -3 \end{array}$
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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

Previous Answer: (-4, 0) # <u>5</u> 1. Solve the system of equations by elimination. $\begin{array}{r} 6x + 4y = 20 \\ (4x - 2y = 14)2 \\ \hline 6x + 4y = 20 \\ 8x - 4y = 28 \\ \hline 24x = 48 \\ \hline x = 2 \end{array}$ $\begin{array}{r} 6x + 4y = 20 \\ -6x - 4y = -20 \\ \hline 4y = 0 \\ y = 0 \end{array}$ Solution: <u>(2, 2)</u>	Previous Answer: (-17, 20) # <u>7</u> 2. Solve the system of equations by elimination. $\begin{array}{r} (x - 3y = 10)2 \\ (5x + 2y = 1)3 \\ \hline 2x - 6y = 20 \\ 15x + 6y = 3 \\ \hline 17x = 23 \\ \hline x = 1 \end{array}$ $\begin{array}{r} 5(1) + 2y = 1 \\ 5 + 2y = 1 \\ -5 \quad -5 \\ \hline 2y = -4 \\ \hline y = -2 \end{array}$ Solution: <u>(1, -2)</u>
Previous Answer: (1, -1) # <u>10</u> 3. Solve the system of equations by elimination. $\begin{array}{r} 3x + 4y = 3 \\ 6x - 4y = -30 \\ \hline 9x = -27 \\ \hline x = -3 \end{array}$ $\begin{array}{r} 3(-3) + 4y = 3 \\ -9 + 4y = 3 \\ +9 \quad +9 \\ \hline 4y = 12 \\ \hline y = 3 \end{array}$	Previous Answer: (2, 2) # <u>1</u> 4. Solve the system of equations by elimination. $\begin{array}{r} (5x + 3y = -3)2 \\ -10x + 6y = -6 \\ 3x + 4y = -6 \\ \hline 12y = -12 \\ \hline y = -1 \end{array}$ $\begin{array}{r} 5x + 3(-1) = -3 \\ 5x - 3 = -3 \\ +3 \quad +3 \\ \hline 5x = 0 \\ x = 0 \end{array}$

Helpful Hints: Use these hints

Step 1: Line up both equations

Step 2: Decide which variable to eliminate

- If coefficients already match, subtract
- If coefficients don't match, multiply

Step 3: Once the variable is eliminated, solve for the other variable

Step 4: Check your point with both equations

You may also enjoy ...

SYSTEMS OF EQUATIONS BY ELIMINATION

20 Task Cards

Answer Key

SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION TASK CARDS RECORDING SHEET

Directions: Solve each system of equations using the elimination method. Show your work in the boxes.

#7 $\begin{cases} -8y + 6x = 36 \\ 6x - 4y = 15 \end{cases}$
 $\begin{matrix} -8y + 6x = 36 \\ -6x + 4y = -15 \\ \hline -2y = 21 \\ y = -10.5 \end{matrix}$
 $\begin{matrix} 6x - 4y = 15 \\ 6x - 4(-10.5) = 15 \\ 6x - 42 = 15 \\ 6x = 57 \\ x = 9.5 \end{matrix}$
Solution: $(9.5, -10.5)$

#12 $\begin{cases} 8x - 5y = 12 \\ 4x - 3y = 5 \end{cases}$
 $\begin{matrix} 8x - 5y = 12 \\ -4x + 3y = -5 \\ \hline 12x - 2y = 17 \end{matrix}$
 $\begin{matrix} 12x - 2y = 17 \\ -12x + 6y = -15 \\ \hline 4y = -2 \\ y = -0.5 \end{matrix}$
 $\begin{matrix} 8x - 5(-0.5) = 12 \\ 8x + 2.5 = 12 \\ 8x = 9.5 \\ x = 1.1875 \end{matrix}$
Solution: $(1.1875, -0.5)$

#1 $\begin{cases} 8x - 5y = 12 \\ 4x - 3y = 5 \end{cases}$
 $\begin{matrix} 8x - 5y = 12 \\ -4x + 3y = -5 \\ \hline 12x - 2y = 17 \end{matrix}$
 $\begin{matrix} 12x - 2y = 17 \\ -12x + 6y = -15 \\ \hline 4y = -2 \\ y = -0.5 \end{matrix}$
 $\begin{matrix} 8x - 5(-0.5) = 12 \\ 8x + 2.5 = 12 \\ 8x = 9.5 \\ x = 1.1875 \end{matrix}$
Solution: $(1.1875, -0.5)$

#4 $\begin{cases} 2x + 5y = 12 \\ 5y = 4x + 6 \end{cases}$
 $\begin{matrix} 2x + 5y = 12 \\ -5y = 4x + 6 \\ \hline 2x = 4x + 18 \\ -2x = 18 \\ x = -9 \end{matrix}$
 $\begin{matrix} 2(-9) + 5y = 12 \\ -18 + 5y = 12 \\ 5y = 30 \\ y = 6 \end{matrix}$
Solution: $(-9, 6)$

#10 $\begin{cases} -4 = 3x - 9 \\ -3x - y = -9 \end{cases}$
 $\begin{matrix} -4 = 3x - 9 \\ -3x - y = -9 \\ \hline -4 = -9 - y \\ y = -5 \end{matrix}$
 $\begin{matrix} -4 = 3x - 9 \\ -4 = 3x - 9 \\ 0 = 3x - 5 \\ 3x = 5 \\ x = 5/3 \end{matrix}$
Solution: $(5/3, -5)$

#11 $\begin{cases} -2x + 4y = 2 \\ -2x + 2y = 4 \end{cases}$
 $\begin{matrix} -2x + 4y = 2 \\ -2x + 2y = 4 \\ \hline 2y = -2 \\ y = -1 \end{matrix}$
 $\begin{matrix} -2x + 4(-1) = 2 \\ -2x - 4 = 2 \\ -2x = 6 \\ x = -3 \end{matrix}$
Solution: $(-3, -1)$

#9 $\begin{cases} 2x - y = -11 \\ y = -2x - 13 \end{cases}$
 $\begin{matrix} 2x - y = -11 \\ y = -2x - 13 \\ \hline 2x - (-2x - 13) = -11 \\ 2x + 2x + 13 = -11 \\ 4x = -24 \\ x = -6 \end{matrix}$
 $\begin{matrix} y = -2(-6) - 13 \\ y = 12 - 13 \\ y = -1 \end{matrix}$
Solution: $(-6, -1)$

#12 $\begin{cases} 8x - 5y = 12 \\ 4x - 3y = 5 \end{cases}$
 $\begin{matrix} 8x - 5y = 12 \\ -4x + 3y = -5 \\ \hline 12x - 2y = 17 \end{matrix}$
 $\begin{matrix} 12x - 2y = 17 \\ -12x + 6y = -15 \\ \hline 4y = -2 \\ y = -0.5 \end{matrix}$
 $\begin{matrix} 8x - 5(-0.5) = 12 \\ 8x + 2.5 = 12 \\ 8x = 9.5 \\ x = 1.1875 \end{matrix}$
Solution: $(1.1875, -0.5)$

Math with Ms. Rivera

Answers Printed on the back!

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SYSTEMS OF EQUATIONS BY ELIMINATION

Digital & Print Activity Pack

5 Activities

SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION

Directions: Solve each system of equations using the elimination method. Show your work in the boxes.

#5 $\begin{cases} x + y = 8 \\ -2x + y = 8 \end{cases}$
 $\begin{matrix} x + y = 8 \\ -2x + y = 8 \\ \hline 3x = 0 \\ x = 0 \end{matrix}$
 $\begin{matrix} 0 + y = 8 \\ y = 8 \end{matrix}$
Solution: $(0, 8)$

#9 $\begin{cases} 2x - y = -11 \\ y = -2x - 13 \end{cases}$
 $\begin{matrix} 2x - y = -11 \\ y = -2x - 13 \\ \hline 2x - (-2x - 13) = -11 \\ 2x + 2x + 13 = -11 \\ 4x = -24 \\ x = -6 \end{matrix}$
 $\begin{matrix} y = -2(-6) - 13 \\ y = 12 - 13 \\ y = -1 \end{matrix}$
Solution: $(-6, -1)$

#12 $\begin{cases} 8x - 5y = 12 \\ 4x - 3y = 5 \end{cases}$
 $\begin{matrix} 8x - 5y = 12 \\ -4x + 3y = -5 \\ \hline 12x - 2y = 17 \end{matrix}$
 $\begin{matrix} 12x - 2y = 17 \\ -12x + 6y = -15 \\ \hline 4y = -2 \\ y = -0.5 \end{matrix}$
 $\begin{matrix} 8x - 5(-0.5) = 12 \\ 8x + 2.5 = 12 \\ 8x = 9.5 \\ x = 1.1875 \end{matrix}$
Solution: $(1.1875, -0.5)$

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SYSTEMS OF EQUATIONS BY ELIMINATION

Choice Board

Equations Choice Board

Directions: Solve each system of equations using elimination. Show your work in the boxes.

1. $\begin{cases} 4x - 6y = 24 \\ -4x + 2y = 16 \end{cases}$

2. $\begin{cases} -7x + 11y = 23 \\ 7x - 11y = 23 \end{cases}$

3. $\begin{cases} -2x + 11y = 9 \\ -2x - 3y = 23 \end{cases}$

4. $\begin{cases} 2x - 11y = 9 \\ 2x + 3y = 23 \end{cases}$

5. $\begin{cases} 6x + 6y = 24 \\ -3x + 3y = 12 \end{cases}$

ANSWER KEY

Systems of Equations Choice Board

Directions: Choose ___ problems from each column. Show your work in the boxes.

1. $\begin{cases} 7x - 4y = -2 \\ -11x + 4y = -22 \end{cases}$
 $\begin{matrix} 7x - 4y = -2 \\ -11x + 4y = -22 \\ \hline 18x = -24 \\ x = -4/3 \end{matrix}$
 $\begin{matrix} 7(-4/3) - 4y = -2 \\ -28/3 - 4y = -2 \\ -4y = -2 + 28/3 \\ -4y = 10/3 \\ y = -5/6 \end{matrix}$
Solution: $(-4/3, -5/6)$

2. $\begin{cases} 4x - 6y = 24 \\ -4x + 2y = 16 \end{cases}$
 $\begin{matrix} 4x - 6y = 24 \\ -4x + 2y = 16 \\ \hline -4y = 40 \\ y = -10 \end{matrix}$
 $\begin{matrix} 4x - 6(-10) = 24 \\ 4x + 60 = 24 \\ 4x = -36 \\ x = -9 \end{matrix}$
Solution: $(-9, -10)$

3. $\begin{cases} -5x + 2y = 23 \\ -5x - 3y = -22 \end{cases}$
 $\begin{matrix} -5x + 2y = 23 \\ -5x - 3y = -22 \\ \hline 5y = 45 \\ y = 9 \end{matrix}$
 $\begin{matrix} -5x + 2(9) = 23 \\ -5x + 18 = 23 \\ -5x = 5 \\ x = -1 \end{matrix}$
Solution: $(-1, 9)$

4. $\begin{cases} -2x + 11y = 9 \\ -2x - 3y = 23 \end{cases}$
 $\begin{matrix} -2x + 11y = 9 \\ -2x - 3y = 23 \\ \hline 14y = -14 \\ y = -1 \end{matrix}$
 $\begin{matrix} -2x + 11(-1) = 9 \\ -2x - 11 = 9 \\ -2x = 20 \\ x = -10 \end{matrix}$
Solution: $(-10, -1)$

5. $\begin{cases} 6x + 6y = 24 \\ -3x + 3y = 12 \end{cases}$
 $\begin{matrix} 6x + 6y = 24 \\ -3x + 3y = 12 \\ \hline 9x + 3y = 12 \\ 3x + y = 4 \end{matrix}$
 $\begin{matrix} 3x + y = 4 \\ -3x + 3y = 12 \\ \hline 4y = 16 \\ y = 4 \end{matrix}$
 $\begin{matrix} 3x + 4 = 4 \\ 3x = 0 \\ x = 0 \end{matrix}$
Solution: $(0, 4)$

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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!

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