

keep scrolling to get
a sneak peek!

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

SYSTEMS OF EQUATIONS BY GRAPHING

Differentiated Circuit Worksheet

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

3 → 9 → 2 → 10 → 4 → 8 → 5 → 7 →

1. Solve the system of equations by graphing.
 $y = -x + 2$
 $x + y = 2$
 $y = -x + 2$
Infinite solutions
Solution: _____

2. Solve the system of equations by graphing.
 $2x + y = 7$
 $x + y = 5$
Solution: _____

3. Solve the system of equations by graphing.
 $-x + y = -7$
 $x + y = -3$
Solution: _____

4. Solve the system of equations by graphing.
 $x + 2y = 2$
 $x - 2y = 6$
Solution: _____

5. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

6. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

7. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

8. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

9. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

10. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

11. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

12. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

13. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

14. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

15. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

16. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

17. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

18. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

19. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

20. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

21. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

22. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

23. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

24. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

25. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

26. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

27. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

28. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

29. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

30. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

31. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

32. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

33. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

34. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

35. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

36. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

37. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

38. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

39. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

40. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

41. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

42. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

43. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

44. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

45. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

46. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

47. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

48. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

49. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

50. Solve the system of equations by graphing.
 $x + y = 5$
 $x - y = 1$
Solution: _____

Math with Ms. Rivera

2 versions + answer key included

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Why do you need this?

Solving Systems of Equations by Graphing Circuit



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



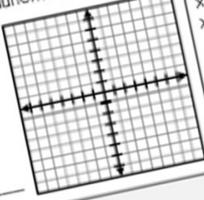
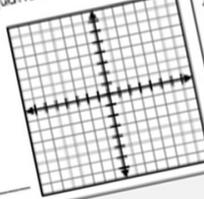
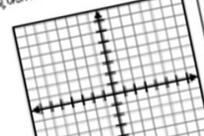
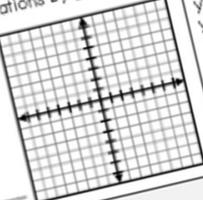
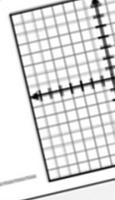
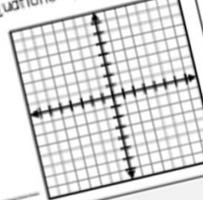
2 differentiated versions for all students practice this essential math skill.

Name: _____ Date: _____

SOLVING SYSTEMS OF EQUATIONS BY 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 → _____ → _____ → _____ → _____ → _____

<p>Previous Answer: No Solution</p> <p>1. Solve the system of equations by graphing.</p> $\begin{cases} 2x + y = 7 \\ x + y = 5 \end{cases}$  <p>Solution: _____</p>	<p>Previous Answer: _____</p> <p>2. Solve the system of equations by graphing.</p> $\begin{cases} x + 2y = 6 \\ x - 2y = 0 \end{cases}$ <p>Solution: _____</p>
<p>Previous Answer: (-1, -1)</p> <p>3. Solve the system of equations by graphing.</p> $\begin{cases} -x + y = -7 \\ x + y = -3 \end{cases}$  <p>Solution: _____</p>	<p>Previous Answer: _____</p> <p>4. Solve the system of equations by graphing.</p> $\begin{cases} x - y = 0 \\ x + y = 0 \end{cases}$ <p>Solution: _____</p>
<p>Previous Answer: (4, -3)</p> <p>5. Solve the system of equations by graphing.</p> $\begin{cases} 3x + 2y = 0 \\ x - y = 5 \end{cases}$  <p>Solution: _____</p>	<p>Previous Answer: _____</p> <p>6. Solve the system of equations by graphing.</p> $\begin{cases} y - 2x = 3 \\ x + y = -2 \end{cases}$ <p>Solution: _____</p>
<p>Previous Answer: (4, 3)</p> <p>7. Solve the system of equations by graphing.</p> $\begin{cases} y = x - 1 \\ 2x - y = -1 \end{cases}$  <p>Solution: _____</p>	<p>Previous Answer: (2, -1)</p> <p>8. Solve the system of equations by graphing.</p> $\begin{cases} y = x - 6 \\ y = -2x - 6 \end{cases}$  <p>Solution: _____</p>
<p>Previous Answer: (-3, 4)</p> <p>9. Solve the system of equations by graphing.</p> $\begin{cases} y = x + 4 \\ y = -x + 4 \end{cases}$  <p>Solution: _____</p>	<p>Previous Answer: Infinite Solutions</p> <p>10. Solve the system of equations by graphing.</p> $\begin{cases} y = -x + 5 \\ 2x - y = -5 \end{cases}$  <p>Solution: _____</p>

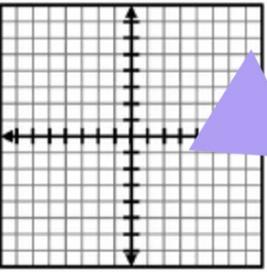
Helpful Hints: Use these hints to help you solve the problems.

- 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.

Parallel Lines = No solutions
Coinciding Lines = One solution

Systems of Equations by Graphing 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

Systems of Equations by Graphing Circuit

standards covered:

CCSS: 8.EE.C.8.ab

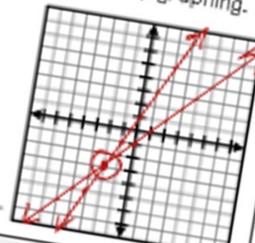
TEKs: A1.5.C

VA SOLs: EI.A.4.d

SOLVING SYSTEMS OF EQUATIONS BY GRAPHING CIRCUIT

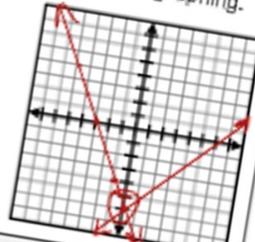
Previous Answer: (4, 3) # **5**

7. Solve the system of equations by graphing.
 $y = x - 1$
 $2x - y = -1$
 $y = 2x + 1$
Solution: $(-2, -3)$



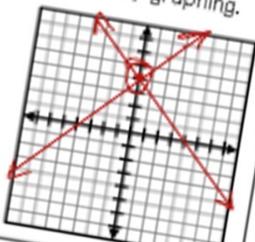
Previous Answer: (2, -1) # **4**

8. Solve the system of equations by graphing.
 $y = x - 6$
 $y = -2x - 6$
Solution: $(0, -6)$



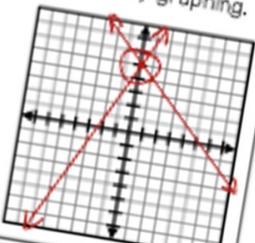
Previous Answer: (-3, 4) # **3**

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 the intersection point.
Step 5: Check the solution by substituting it into both equations.

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.

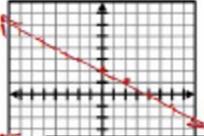
how to use this resource

This is a great activity to use when reviewing how to solve systems of equations using the graphing 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 GRAPHING CIRCUIT

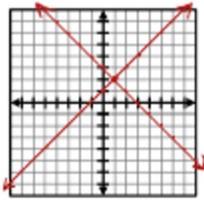
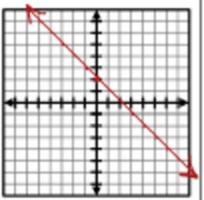
<p>Previous Answer: (2, -3) # 5</p> <p>7. Solve the system of equations by graphing.</p> $\begin{aligned} x + 2y &= 4 \\ x + 2y &= -16 \end{aligned}$  <p>Solution: <u>NO SOLUTION</u></p>	<p>Previous Answer: (0, 0) # 4</p> <p>8. Solve the system of equations by graphing.</p> $\begin{aligned} 2x - y &= 11 \\ x + y &= 1 \end{aligned}$ 
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Name: **Answer Key** Date: _____

SOLVING SYSTEMS OF EQUATIONS BY GRAPHING CIRCUIT

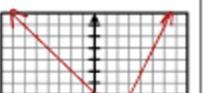
Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the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

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

<p>Previous Answer: (-2, -3) # 7</p> <p>1. Solve the system of equations by graphing.</p> $\begin{aligned} y &= x + 1 \\ y &= -x + 3 \end{aligned}$  <p>Solution: <u>(1, 2)</u></p>	<p>Previous Answer: (0, 4) # 9</p> <p>2. Solve the system of equations by graphing.</p> $\begin{aligned} y &= -x + 2 \\ x + y &= 2 \end{aligned}$ <p><u>$y = -x + 2$</u></p>  <p>Solution: <u>Infinite Solutions</u></p>
--	--

Challenge: The line given on the graph passes through the point (5, -3) and is perpendicular to the line $y = \frac{2}{3}x - 4$. Write the equation of the line in standard form.

$3x - 2y = 8$ EQ1:
 $-3x - 3x = -3x - 3x$ EQ2:
 $-2y = -3x + 8$
 $-2y = -3x + 8$
 -2
 $y = \frac{3}{2}x - 4$
 $\perp m = -\frac{2}{3}$ $y = \frac{2}{3}x - 4$
 $-3 = -\frac{2}{3}(5) + b$ $3(\frac{2}{3}x - 4)$
 $-3 = -\frac{10}{3} + b$
 $+\frac{10}{3} + \frac{10}{3}$
 $\frac{1}{3} = b$

<p>Previous Answer: No Solution # 6</p> <p>3. Solve the system of equations by graphing.</p> $\begin{aligned} y &= x + 7 \\ y &= -2x - 2 \end{aligned}$ 	<p>Previous Answer: (0, 5) # 10</p> <p>4. Solve the system of equations by graphing.</p> $\begin{aligned} y &= 2x - 5 \\ y &= -x + 1 \end{aligned}$ 
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You may also enjoy...

SYSTEMS OF EQUATIONS BY SUBSTITUTION

Choice Board

Date: _____ Period: _____ Name: _____ **ANSWER KEY** Date: _____

Equations Choice Board
Solve each system using substitution. Show your work in the boxes.

$-12x - 3y = -57$ $y = -4x + 19$	$y = -9x + 10$ $2x - 11y = -9$
$x - 2y = 2$ $-11x - 11y = 11$	$x - 11y = -11x + 6y$
$x - 7y = 17$	$9x - 27x =$

Systems of Equations Choice Board
Directions: Choose _____ problems from each column. Solve. Show your work in the boxes.

$y = -5x + 7$ $-12x + 9y = 6$ $-12x + 9(-5x + 7) = 6$ $-12x - 45x + 63 = 6$ $-57x + 63 = 6$ $-57x = -57$ $x = 1$ $y = -5(1) + 7$ $y = -5 + 7$ $y = 2$ $(1, 2)$	$y = -4x + 19$ $-12x - 3y = -57$ $-12x - 3(-4x + 19) = -57$ $-12x + 12x - 57 = -57$ $-57 = -57$ Infinitely many solutions
$-16x - 2y = -1$ $8x + y = 0$ $y = -8x$ $-16x - 2(-8x) = -1$ $-16x + 16x = -1$ $0 = -1$ No solution	$x - 2y = 2$ $-11x - 11y = 11$ $x = 2y + 2$ $-11(2y + 2) - 11y = 11$ $-22y - 22 - 11y = 11$ $-33y - 22 = 11$ $-33y = 33$ $y = -1$ $x = 2(-1) + 2$ $x = -2 + 2$ $x = 0$ $(0, -1)$
$24x + 3y = -5$ $8x + y = -2$	$x - 2y = 2$ $6x - 2y = 16$ $2x - 5y = -16$

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SYSTEM OF EQUATIONS

Color by Number worksheet

Date: _____

SYSTEMS OF EQUATIONS COLOR BY NUMBER
Directions: Solve each system. Circle the answer from the given choices. Your answers will tell you how to color the grid.

$3. 3x + 2y = 10$ $4x - 3y = 8$	$2. 3x + 2y = 8$ $6x + 4y = 4$
$(-1, 4)$ red	$(2, 4)$ yellow
$(4, 1)$ black	no solution light gray
$(-1, 4)$ pink	$(-1, 7)$ teal/blue
$(0, -2)$ orange	$(2, 0)$ purple
$(-2, 8)$ black	$(-1, -7)$ dark blue

ANSWER KEY INCLUDED

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SYSTEMS OF EQUATIONS BY SUBSTITUTION

Directions: Solve each system of equations using substitution. Type your answer as an ordered pair with no spaces and the picture will

#	Question	Answer	#	Questions	Answer
1	$y = -2x + 13$ $y = 4x - 11$	<input type="text"/>	6	$y = 2x - 9$ $-x - 6y = -11$	<input type="text"/>
2	$y = -3x - 3$ $y = 7x + 17$	<input type="text"/>	7	$4x - 5y = 21$ $x - 3y = 21$	<input type="text"/>
3	$y = 5x - 22$ $7x - 7y = 14$	<input type="text"/>	8	$2x + y = 25$ $3x - 2y = 13$	<input type="text"/>
4	$-9x - 4y = 0$ $y = -5x + 11$	<input type="text"/>	9	$-2x - 7y = 7$ $-8x + y = -1$	<input type="text"/>
5	$-6x + 2y = -4$ $y = -9x + 10$	<input type="text"/>	10	$2x + 10y = -20$ $x + 8y = -10$	<input type="text"/>

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Self-Checking

Math with Ms. Rivera

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 $\frac{x-2}{x^2+2x+1}$.
- 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	$\frac{x^2+2x}{x^2-1} - \frac{x+1}{x-1}$	$\frac{x-2}{4x}$	

(c) Malia Rivera, 2024



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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