

SOVING BY elimination

agenda

WARM-UP

Notes P.82

summarize P.83

HW

#1,2,5,6,7,10,12

QUIZ & HW 4.3
DUE TOMORROW!

$$\frac{\Delta y}{\Delta x}$$

WARM-UP - THURSDAY

1. Which of the following tables best represents a linear function with a rate of change of -3 ? $a =$
(Hint: use stat)

A

x	y
0	-8
-6	-4
-9	-2
-12	0

B

x	y
9	-4
6	-6
-6	-14
-9	-16

x	y
4	9
-6	12
0	3
2	0

x	y
-3	1
-1	-5
2	-14
3	-17

$$m = -\frac{3}{2}$$

$$m = -\frac{6}{2} = -3$$

2. Solve the following system

$$\begin{aligned} y &= 8 - 4x \\ 5y + x &= -55 \end{aligned}$$

$$5(8 - 4x) + x = -55$$

$$40 - 20x + x = -55$$

$$40 - 19x = -55$$

$$-40 - 19x = -95$$

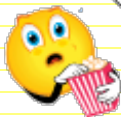
$$-19x = -95$$



$$x = 5$$

$$(5, -12)$$



$$\begin{aligned} y &= 8 - 4(5) \\ y &= 8 - 20 \end{aligned}$$

1)





\$7.00



\$5.00

Solve each system of equations by elimination. Write your answer as an ordered pair (x, y) .

p.82

Add equations

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

$$(1, 5)$$

$$1x = 1$$

$$\begin{array}{r} 3(1) - y = -2 \\ 3 - y = -2 \\ -3 - y = -5 \\ -y = -5 \\ \hline y = 5 \end{array}$$

$$\begin{array}{r} 2. \quad x + 2y = 5 \\ + \quad -x + y = 4 \\ \hline \end{array}$$

$$(-1, 3)$$

$$\begin{array}{r} 3y = 9 \\ \frac{3y}{3} = \frac{9}{3} \\ y = 3 \end{array}$$

$$\begin{array}{r} x + 2(3) = 5 \\ x + 6 = 5 \\ -6 \quad -6 \\ \hline x = -1 \end{array}$$

$$\begin{array}{r} 3. \quad 2x + y = 5 \\ + \quad x - y = 1 \\ \hline \end{array}$$

$$(2, 1)$$

$$\begin{array}{r} 3x = 6 \\ \frac{3x}{3} = \frac{6}{3} \\ x = 2 \end{array}$$

$$\begin{array}{r} 2(2) + y = 5 \\ 4 + y = 5 \\ \hline y = 1 \end{array}$$

4. $3x - 2y = -1$

$+ \cancel{3x} + 4y = 9$

$6x - 6y = 8$

$\left(-\frac{11}{3}, -5\right)$

$3x - 2y = -1$
 $+ -3x + 4y = -9$

$2y = -10$

$y = -5$

★ Same #
 ★ opposite signs

$3x - 2(-5) = -1$
 $3x + 10 = -1$
 $-10 -10$
 $3x = -11$
 $\frac{3x}{3} = \frac{-11}{3}$

5. $3x + y = 5$

$+ -2x + y = 10$

$x = -5$

$(-5, 20)$

$3(-5) + y = 5$
 $-15 + y = 5$
 $+15 +15$
 $y = 20$

★ Lined up
 x's y's = #s

6. $4x - 3y = 12$

$+ 3y - 4x = -12$

$4x - 3y = 12$

$+ -4x + 3y = -12$

$0 = 0 \checkmark$

All real #s (\mathbb{R})

★ The equation of two lines are $3x - 5y = -35$ and $-2x + 5y = 30$. What is the value of y in the solution for this system of equations?

8. David and Jose went to Target to buy clothes. David bought two shirts and one pair of jeans for \$53.50. Jose bought two shirts and three pairs of jeans for \$108.50. How much is one pair of jeans?

Let cost of jeans be j .
Let cost of shirt be s .

$$\begin{array}{l} \text{David: } 2s + j = 53.50 \\ \text{Jose: } -2s + 3j = 108.50 \end{array}$$

$$\begin{array}{r} -2j = -55 \\ \hline -2 \quad -2 \end{array}$$

$$j = \$27.50$$

On the next page in your notebook (p.83), write or draw out the steps to solve a system by elimination. Your steps should include an example and **COLOR.**

**EQUAL BUT
OPPOSITE**

example

$$3x + y = -6$$

$$5x + y = -10$$

- line up equations
- multiply to get opposite coefficients

add to eliminate
a variable &
solve

substitute value
of variable in
1 equation

check in the
other equation

HW #1, 2, 5, 6, 7, 10, 12

Algebra 1 - Unit 6 - Topic 2 - Solving Systems by Elimination

Practice - Solving Systems by Elimination

pp 397-403

Name _____

Date _____

Period _____

Solve each system of equation using elimination.

1.
$$\begin{aligned} x + y &= 5 \\ 3x - y &= 7 \end{aligned}$$

2.
$$\begin{aligned} 3x + 5y &= 0 \\ -2x + 5y &= 25 \end{aligned}$$

3.
$$\begin{aligned} 2x + y &= 3 \\ -2x + 5y &= -9 \end{aligned}$$

4.
$$\begin{aligned} -4x + 6y &= -4 \\ 4x - 9y &= 5 \end{aligned}$$

Set up and solve using elimination. Show all work!

5. Julie went to the Texas Tornado hockey game and bought two hamburgers and two cokes for \$5.36. Angela bought three hamburgers and two cokes for \$6.85. What is the cost of one hamburger?

Let Statements

Answer:
(in a complete sentence)

Solve each system of equation using elimination.

6.
$$\begin{aligned} 3x + 8y &= -1 \\ -3x + y &= -17 \end{aligned}$$

7.
$$\begin{aligned} 2x + y &= 5 \\ -2x - y &= 8 \end{aligned}$$

8.
$$\begin{aligned} 3x + y &= -6 \\ 5x + y &= -10 \end{aligned}$$

9.
$$\begin{aligned} \frac{1}{2}x - 5y &= 30 \\ \frac{1}{2}x + 7y &= 6 \end{aligned}$$

Algebra I - Unit 6: Topic 2 – Solving Systems by Elimination

Solve each system of equation using elimination.

10.
$$\begin{aligned} 4x + 7y &= -12 \\ 4x + y &= 12 \end{aligned}$$

11.
$$\begin{aligned} x + 2y &= 15 \\ 5x - 2y &= 3 \end{aligned}$$

12. Naomi took a 40-question history exam. The exam only had multiple-choice questions and short-answer questions. Each multiple-choice question was worth one point; each short-answer question was worth five points; the whole exam was worth 100 points.

A. Which system of equation could be used to solve for m , the number of multiple-choice questions, and s , the number of short-answer questions?

A
$$\begin{aligned} 5m + s &= 40 \\ m + s &= 100 \end{aligned}$$

C
$$\begin{aligned} s + m &= 40 \\ 5s + m &= 100 \end{aligned}$$

B
$$\begin{aligned} m + s &= 40 \\ 5m + s &= 100 \end{aligned}$$

D
$$\begin{aligned} 5s + m &= 40 \\ s + m &= 100 \end{aligned}$$

B. Solve the system that you selected in part A.

C. Write the meaning of your solution in a complete sentence.

Set up the system of equation ONLY! DO NOT SOLVE!

13. The student council is selling school supplies as a fund raiser. Josh bought four pencils and two ballpoint pens for \$0.74. Zach bought six pencils and five ballpoint pens for \$1.53. Write a system of equations that can be used to find the cost of a pencil and the cost of a ballpoint pen.

Let Statements



