Algebra 1 Name:

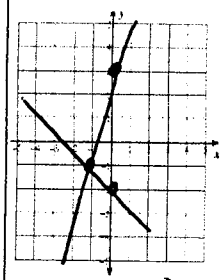
Systems of Equations – Day 3 – Writing and Solving Review

	Writing & Solving Systems of Equations
Read the problem twice!	1st Define your variables. 2nd Write the 2 equations using key information from the problem. 3rd Solve. Choose the best method.

Methods to Solve Systems of Equations

Graphing

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



$(-1, -1)$

y= 2nd trace 5

$y = 2x - 4$
$y = -\frac{1}{3}x + 3$

$(3, 2)$

Tables

x	y
1	7
2	6
3	5
4	4

x	y
1	-2
2	0
3	2
4	4

$(4, 4)$

Substitution

$y = 2x - 1$
$x + y = 5$
$x + 2x - 1 = 5$
$3x - 1 = 5$
$3x = 6$
$x = 2$
$y = 2(2) - 1$
$y = 3$
$(2, 3)$

Elimination

$2x - y = 7$
$3x + y = 13$
$5x = 20$
$x = 4$
$2(4) - y = 7$
$8 - y = 7$
$-y = -1$
$y = 1$
$(4, 1)$

Matrix

$x + y = 5$
$3x - 2y = 20$

$(6, -1)$

Write and solve systems of Linear Equations to Solve Real-life Problems:

1: Karen makes $5 per hour babysitting and $12 per hour giving music lessons. One weekend, she worked a total of 18 hours and made $139. Write a system of equations and find the number of hours Karen spent babysitting, *b*, and giving music lessons, *m*.

b = hours babysitting
m = hours music lessons

$5b + 12m = 139$
$b + m = 18$

(Matrix)
(11, 7)

11 hours babysitting
7 hours giving music lessons

2. You have a total of 18 math and science exercises for homework. You have six more math exercises than science exercises. How many exercises do you have in each subject?

x = # math problems
y = # science problems

$x + y = 18$
$x = y + 6$

(substitution)
$(y + 6) + y = 18$
$2y + 6 = 18$
$2y = 12$
$y = 6$

$x = 6 + 6$
$x = 12$

12 math
6 science

3. The Blackwells and Joneses are going to the Johnson space center in Houston. Find the children's price of admission.

Family	Number of Adults	Number of Children	Total Cost
Blackwell	2	5	$105.65
Jones	2	3	$77.75

x = price adult tkts
y = price children tkts

$2x + 5y = 105.65$
$2x + 3y = 77.75$

(Matrix)
(17.95, 13.95)

Adults: $17.95
Children: $13.95

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Systems of Equations – Day 3 – Writing and Solving Review

Writing a System of Equations: 1st: Assign variables, 2nd: Set up equations. DO NOT SOLVE!!

1. Anthony bought 1 ruler and one pencil for $1.25. Kevin bought 3 rulers and two pencils for $3.55. Write a system of equations that could be used to find the price of 1 ruler, *r*, and 1 pencil, *p*?

2. The carnival sells adult tickets for $2 each and child's tickets for $1.50 each. Last month, they sold a total of 350 adult and child's tickets, and received $4750 in sales. Write a system of equations that could be used to find the number of adult tickets, *a*, and the number of child's tickets, *c*, that were sold last month?

Solving a System of Equations: 1st: Decide which method to use, 2nd: Find the solution.

Solution Bank:	(7, 1)	(3, 6)	(7, 7)	(2, 5)	(3, 15)	(1, -2)

3. $\begin{cases} y = 2x \\ y = -x + 9 \end{cases}$ Method: Solution:

4. $\begin{cases} y = x \\ y = -x + 14 \end{cases}$ Method: Solution:

5. $\begin{cases} y = 2x + 1 \\ x + y = 7 \end{cases}$ Method: Solution:

6. $\begin{cases} x = y + 6 \\ x + y = 8 \end{cases}$ Method: Solution:

7. $\begin{cases} 4x + y = 2 \\ 2x + 3y = -4 \end{cases}$ Method: Solution:

8.

x	Y_1	Y_2
1	17	13
2	16	14
3	15	15
4	14	16

Solution:

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Systems of Equations – Day 3 – Writing and Solving Review

Writing and Solving a System of Equations: 1st: Assign variables, 2nd: Set up equations, 3rd: Solve

9. The price of a sweater is 5 less than twice the price of a jacket. If four sweaters and three jackets cost $200, find the price of each sweater and jacket.

1st: Assign Variables:

_____:_____

_____:_____

2nd: Set up the Equations:

Equation 1:

Equation 2:

3rd: Solve:

The price of a sweater is _____.

The price of a jacket is _____.

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10. Adult tickets to a basketball game cost $5 and student tickets cost $3. In all, 90 tickets were sold for a total of $334. How many adult tickets were sold? Bubble in your answer.

1st: Assign Variables:

_____:_____

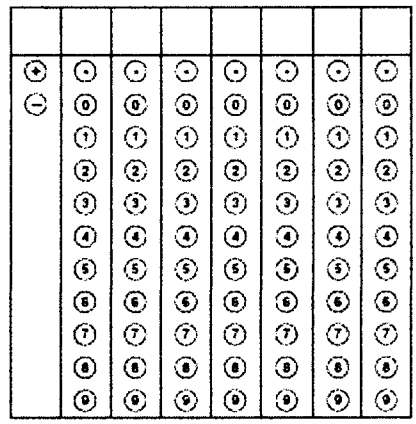
_____:_____

2nd: Set up the Equations:

Equation 1:

Equation 2:

3rd: Solve:



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Choose the system of equations that represents the given problem. Then solve the system by any method to find the answer to the problem.

11. The length of a rectangle is 5 feet more than the width. The perimeter is 22 feet. What is the length of the rectangle?

A. $L = 5W$
$P = 22$

Solve:

B. $L = 5 - W$
$P = 2L + 2W$

C. $L = W + 5$
$2L + 2W = 22$

D. $W = L + 5$
$2L + 2W = 22$

The length of the rectangle is _____.

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12. Gillian is conducting an experiment for science class. She is adding ice to two glasses of water and recording the temperature of the water every minute for one hour. Glass A started at 80° and after having ice added, is cooling at a rate of 2 degrees per minute. Glass B started at 95° and after having ice added, is cooling at a rate of 3 degrees per minute. Gillian hypothesized that the two glasses would reach the same temperature after 15 minutes. Was her hypothesis reasonable?

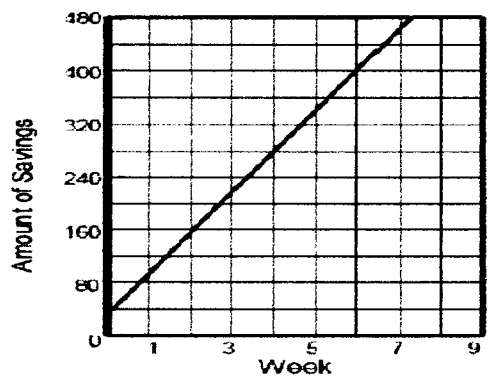
A Yes, after 15 minutes, both glasses of water would reach 50° *F*.

B No, after 15 minutes, both glasses would not reach 50° *F*.

STAAR Review:

1. What is the slope of the graph?

2. What does the slope of the graph represent?



3. The amount an appliance repairman charges for each job is represented by the function $t = 50h + 35$, where h represents the number of hours he spent on the job and t represents the total amount he charges in dollars for the job. The repairman plans to change the amount he charges for each job. The amount he plans to charge is represented by the function $t = 50h + 45$. What will be the effect of this change on the amount he charges for each job?

A The starting amount for each job will increase by $10.

B The starting amount for each job will decrease by $10.

C The amount he charges per hour will increase by $10.

D The amount he charges per hour will decrease by $10.