Algebra I

Unit 4 Test 2 Review

Name: Key

Date: _____ Period: _____

Remember to study your notes and old homework. Show all work to receive credit!!

1. Which of the following graphs best represents the solution to the following system of equations?

Solve both for y!

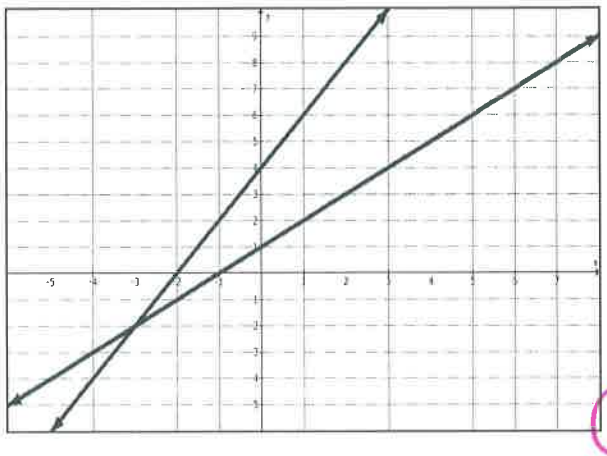
① $2x + y = 4$

② $x - y = -1$

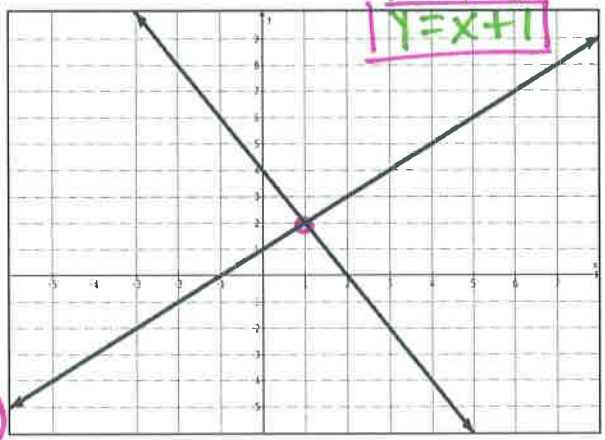
① $2x+y=4$, $-2x \quad -2x$, $y = -2x+4$

② $x-y=-1$, $-x \quad -x$, $-y = -x-1$, $\frac{-y}{-1} = \frac{-x}{-1} - \frac{1}{-1}$, $y = x+1$

A.



B.



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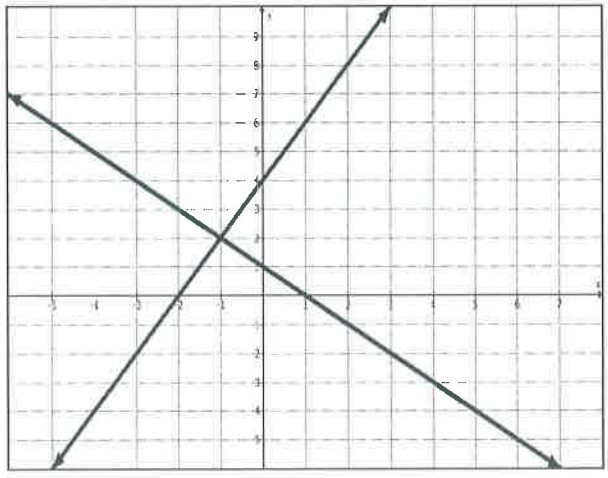
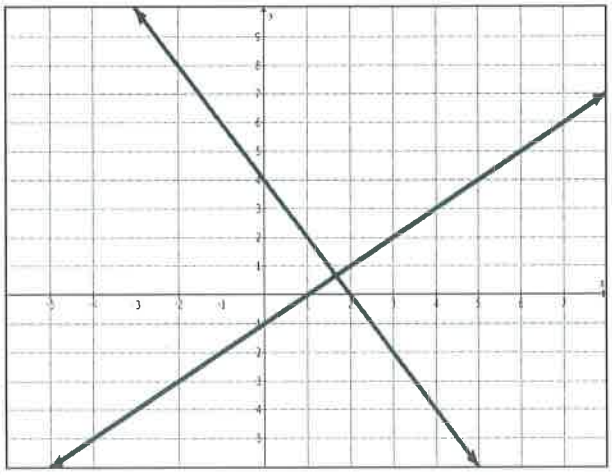


D.



2. A boy has seven more nickels than quarters. The total value of the coins is $4.90. Which system could be used to find how many nickels and quarters he has?

Let n be nickels. .05

Let q be quarters. .25

(A) $n = 7 + q$
$0.05n + 0.25q = 4.90$

(B) $n = 7q$
$n + q = 4.90$

(C) $q = 7 + n$
$0.05n + 0.25q = 4.90$

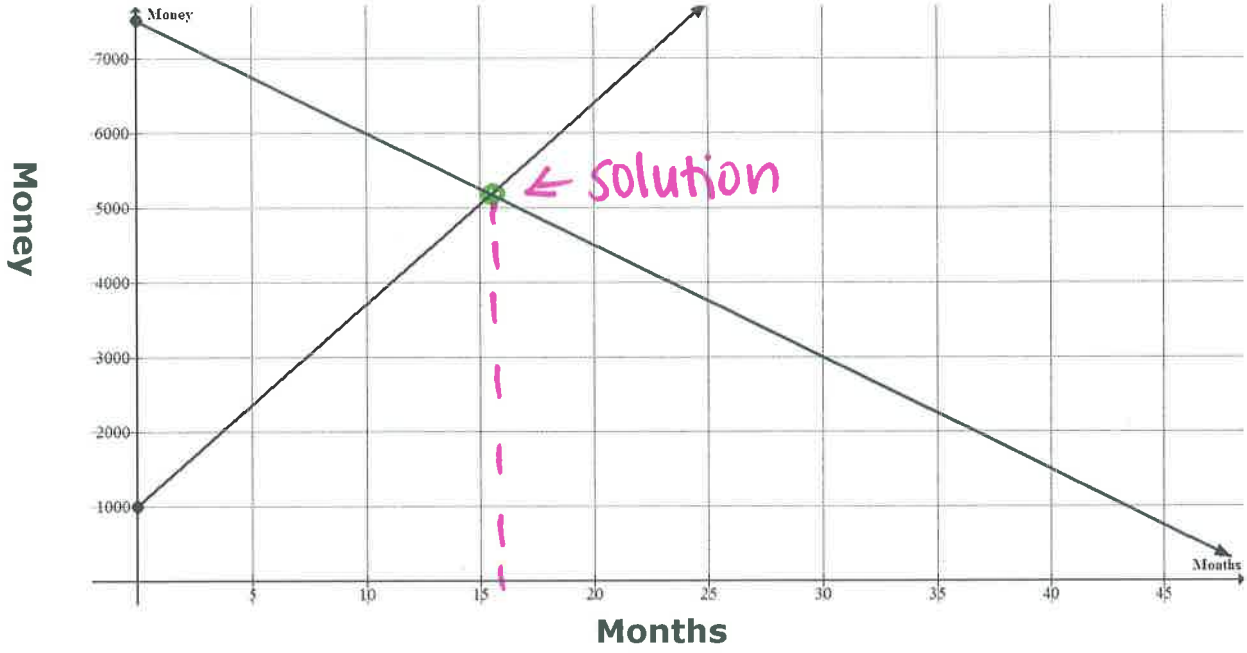
(D) $n = 7 + q$
$n + q = 4.90$

more nickels → nickels by itself!

$n = 7 + q$

$.05n + .25q = 4.90$

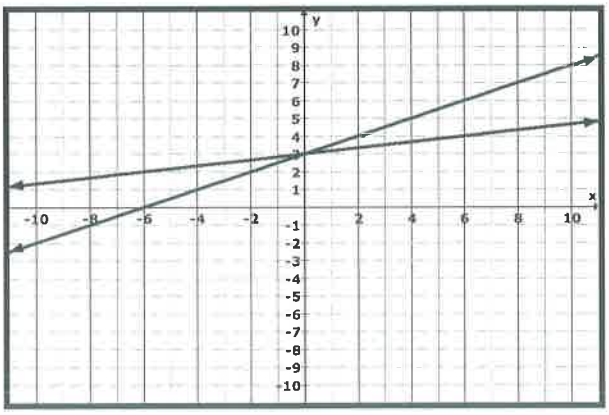
3. Adam has a savings account in which he is investing some money each month. He has another account with $7,600 in which he is withdrawing some money each month. This information is shown in the graph below.



After how many months will the two accounts have the same amount of money?

A 15 months
B 5200 months
C 1000 months
D 16 months

4. The following graph shows the solution to a system of equations.



Which system of equations is best represented by the graph above?

A $y = 2x + 3$
$y = 6x + 3$

B $y = 2x + 3$
$y = \frac{1}{6}x + 3$

C $y = \frac{1}{2}x + 3$
$y = 6x + 3$

D $y = \frac{1}{2}x + 3$
$y = \frac{1}{6}x + 3$

Plug choices into calc → which graphs match?

5. Look at the inequalities below.

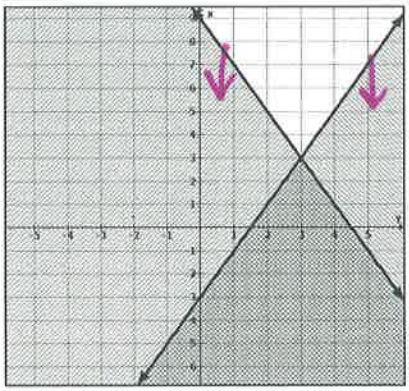
$y \geq 2x - 3$ shade up

$y \geq -2x + 9$ shade up

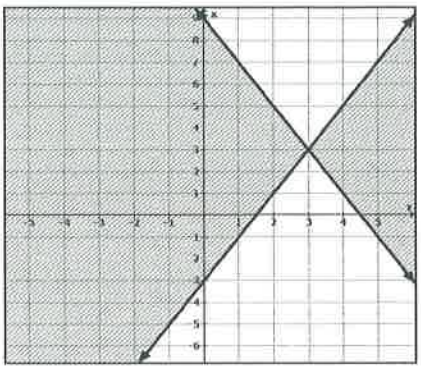
	up	down
dotted	>	<
solid	≥	≤

Which graph best represents this system of inequalities?

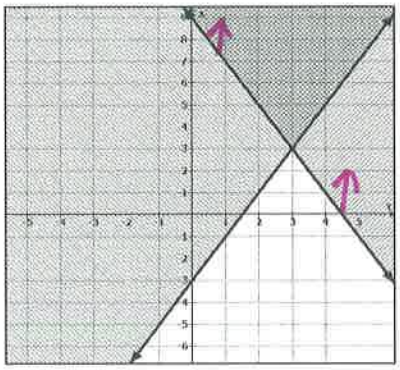
A



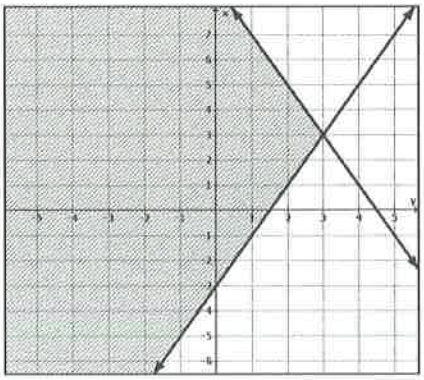
B



C



D



6. A jar containing only nickels and dimes contains a total of 18 coins. The value of all the coins in the jar is $1.40. How many nickels and dimes are in the jar?

nickels: .05
dimes: .10

E 10 nickels and 10 dimes - more than 18!
G 8 nickels and 10 dimes ✓ $1.40
H 3 nickels and 15 dimes
J 12 nickels and 4 dimes - less than 18!

7. A local movie theater charges $6 for each adult ticket and $4 for each child ticket. If the theater sold a total of 150 adult and child tickets for a total of $800, what is a reasonable conclusion for this situation?

A. The same number of adult tickets sold as child tickets.
B. There are more child tickets than adult tickets
C. There were 100 adult tickets
D. There were 100 child tickets

Let a be adult tickets
Let c be child tickets

$6a + 4c = 800$
$a + c = 150$

$\begin{bmatrix} 6 & 4 \\ 1 & 1 \end{bmatrix}^{-1} \begin{bmatrix} 800 \\ 150 \end{bmatrix}$

100 adult
50 kids

OMIT

8. Which system of equations is best represented by the tables below?

can use STAT LinReg

Line 1

x	y
-6	13
-2	7
0	1
4	-11

+4, +2, -6, -6

m=

Line 2

x	y
-6	-5
-2	-4
0	-3
4	-1

OR

type in answer choices & check tables

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

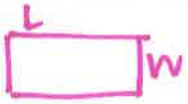
B. $y = -3x + 1$
$y = \frac{1}{2}x - 3$

C. $y = 3x - 1$
$y = -\frac{1}{2}x - 3$

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

9. The perimeter of Jenny's rectangular living room is 60 feet. The width is 6 less than 2 times its length. What are the length and width of the garden?

Let L be length
Let w be width



$2L + 2W = 60$
$W = 2L - 6$
$-2L \quad -2L$

$2L + 2W = 60$
$-2L + W = -6$

$\begin{bmatrix} 2 & 2 \\ -2 & 1 \end{bmatrix}^{-1} \begin{bmatrix} 60 \\ -6 \end{bmatrix}$

(12, 18)

A. The length of the garden is 20 ft., and the width is 10 ft.
B. The length of the garden is 18 ft., and the width is 12 ft.
C. The length of the garden is 12 ft., and the width is 18 ft.
D. The length of the garden is 25 ft., and the width is 11 ft.

10. How many solutions does the following system have?

solve for y, look @ graph

$y_1 = 4x + 7$
$5x - 3y = 12$
$-5x \quad -5x$
$-3y = -5x + 12$
$\frac{-3y}{-3} = \frac{-5x}{-3} + \frac{12}{-3}$
$y = \frac{5}{3}x - 4$

A. One Solution
B. Two Solutions
C. Infinite Solutions
D. No Solutions

11. What is the x-coordinate of the solution to the system of linear equations below?

$3x + 3y = 6$
$6x + 2y = 20$

A. x = -4
B. x = 4
C. x = -2
D. x = 2

$\begin{bmatrix} 3 & 3 \\ 6 & 2 \end{bmatrix}^{-1} \begin{bmatrix} 6 \\ 20 \end{bmatrix}$

(4, -2)

12. Which of the following is a solution to the system of inequalities listed below?

← must work for both

Plug in points!

$y > x - 3$
$y \leq 2x + 3$

A. (2, -2)
B. (4, 1)
C. (6, 0)
D. (0, 2)

x y

A. $-2 > 2 - 3$?
$-2 \not> -1$

B. $1 > 4 - 3$?
$1 > 1$

C. $0 > 6 - 3$?
$0 \not> 3$

D. $2 > 0 - 3$ ✓ $\quad 2 \leq 2(0) + 3$
$2 \not> -3$ $\quad 2 \leq 3$ ✓

13. Solve the following system of equations.

$y = x + 5$
$2x + y = 8$
$-2x \quad -2x$
$y = -2x + 8$

2nd TRACE 5:intersect

(1, 6)

A. (1, 6)
B. (0, 5)
C. (0, 8)
D. (2, 6)

MATRIX

$y = x + 5$
$-x \quad -x$
$2x + y = 8$

$-x + y = 5$
$2x + y = 8$

$\begin{bmatrix} -1 & 1 \\ 2 & 1 \end{bmatrix}^{-1} \begin{bmatrix} 5 \\ 8 \end{bmatrix}$

14. The tables below represent values that correspond to a system of equations. What is the solution to this system of equations?

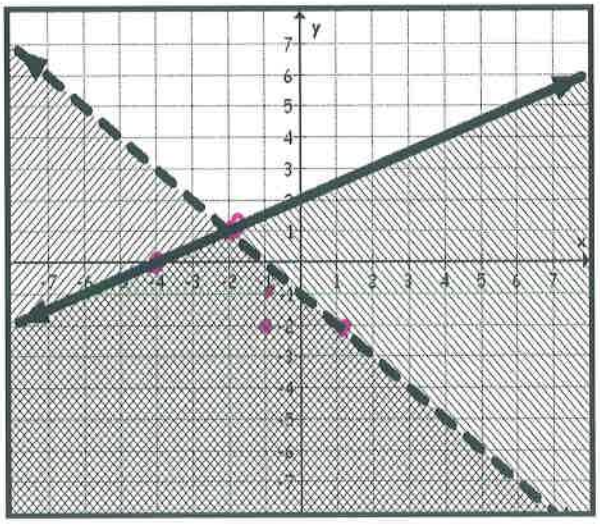
which point appears twice?

Line A	
x	y
-8	-0.5
-4	0
0	0.5
4	1

Line B	
x	y
-4	0
-2	4
0	8
4	16

A. (-4, 0)
B. (0, 0.5)
C. (2, -2)
D. (4, 1)

Use the graph to answer the following question.



solutions are in double-shaded

(shared space → "kitchen")

15. Which of the following do not accurately describe a solution to the system of inequalities?

I. (-2, 1) ← solutions not on dotted line
II. (-1, -1) ✓
III. (-1, -2) ✓
IV. (-4, 0) ✓
V. (1, -2) ← not on dotted

A. I only
B. V only
C. II and III
D. I, IV and V
E. I, II and III

I & V