Key

60

Instructions

- Complete the problems as if this were an actual test.
  - 50-60 minutes of uninterrupted time. (this means no phones, Netflix, snapchat, etc....I promise you will survive ☺)
  - No help from notes, friends, google, etc.
- After you have completed the problems, grade your test using the key provided.
- Try extra problems similar to the ones you missed until you feel like you understand those concepts.

Secondary Math III
Practice Exam 12

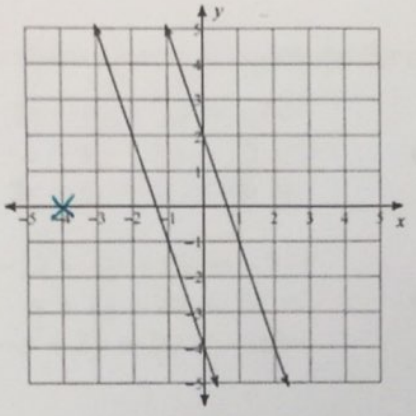
Name_____
Period_____

Multiple Choice (+1 pt each)

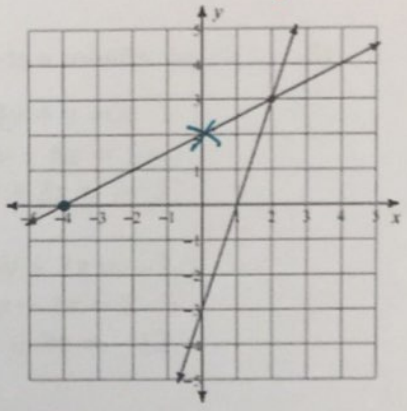
C 1. Choose the graph that solves the following system: $\begin{cases} -4 = x + 2y \\ 8 = 2y + 7x \end{cases}$ (-4,0)(0,-2) $y = -\frac{1}{2}x + 4$

ch: $-4 = 2 - 6$ ✓
$8 = -6 + 14$ ✓

A.



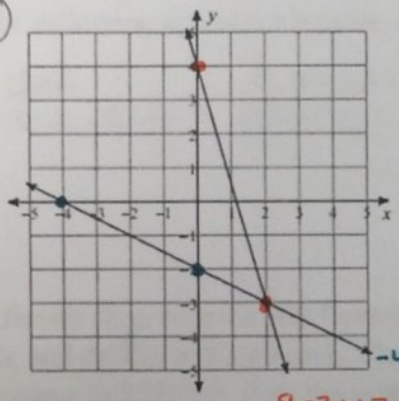
B.



(2, 3)

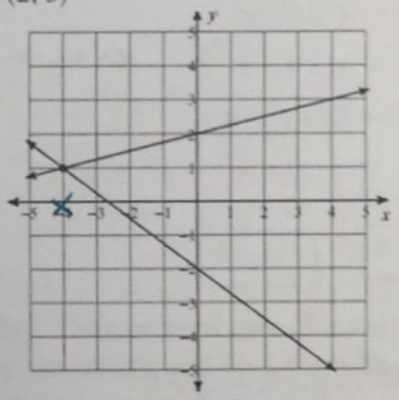
No solution

C.



(2, –3)

D.



(–4, 1)

C 2. Solve the following system by elimination or substitution: $\begin{cases} -2x + y = -17 \\ 2x + 5y = -13 \end{cases}$

ch: $-12 - 5 = -17$ ✓
$12 - 25 = -13$ ✓

$6y = -30$
$(y = -5)$

A. (-4, ~~8~~)
B. (4, ~~5~~)
C. (6, -5)
D. Infinite ~~number of solutions~~

A 3. Classify the following system: $\begin{cases} 3x = -4 + 4y \\ -4 = 3x - 4y \end{cases}$ → $y = \frac{3x}{4} + \frac{y}{4}$ → $y = \frac{+3x - y}{+4 \quad -4}$

parallel
no sol'n (solve)
classify → inconsistent

A. Inconsistent
B. No Solution
C. Consistent/Independent
D. Consistent/Dependent

classify & solve do not mean the same thing. If we were SOLVING, then the answer would be NO SOL'N.

1/3

6. Harry's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 6 adult tickets and 4 child tickets for a total of $80. The school took in $76 on the second day by selling 5 adult tickets and 4 child tickets. Find the price of a child ticket. Solve for y.

A. $3 B. $14 C. $7 D. $4

$6x + 4y = 80$
$5x + 4y = 76$

$x = 4$

$6(4) + 4y = 80$

$y = 14$

ch: $20 + 56 = 76$ ✓

7. Determine which system of equations the ordered triple is a solution to. (1, -1, -3)

A. $\begin{cases} -2x - 4y + 3z = -7 \\ -x + 4y - 6z = 13 \\ 5x - y - 3z = 3 \end{cases}$

C. $\begin{cases} 2x - 3y + z = 2 \\ -x + 4y - 6z = 13 \\ -x + 2y + 3z = -12 \end{cases}$

B. $\begin{cases} -2x - 4y + 3z = -7 \\ -x + 4y - 6z = 13 \\ -x + 2y + 3z = -12 \end{cases}$

D. $\begin{cases} -2x - 4y + 3z = -7 \\ 2x - y + 2z = 3 \\ -x + 2y + 3z = -12 \end{cases}$

8. Solve the following system of equations: $\begin{cases} x^2 + 6x = y \\ 6y = 24x \end{cases} \rightarrow y = 4x$

A. (2, 4) C. No solution
B. (0, 4), (8, -4) D. (0, 0), (-2, -8)

$x^2 + 6x = 4x$
$x^2 + 2x = 0$
$x(x+2) = 0$
$x = 0 \mid x = -2$
$y = 0 \mid 4 - 12 = -8$
(0, 0) (-2, -8)

9. Beka's flower shop ordered 200 flowers for Mother's Day. They ordered carnations at $1.50 each, roses at $5.75 each, and daisies at $2.60 each. They ordered mostly carnations, and 20 fewer roses than daisies. The total order came to $589.50. Pick the system of equations to best represent the problem.
x = Carnations, y = Roses, z = Daisies

A. $\begin{cases} x + y + z = 589.50 \\ 1.50x + 5.75y + 2.60z = 200 \\ z - 20 = y \end{cases}$

C. $\begin{cases} x + y + z = 200 \\ 1.50x + 5.75y + 2.60z = 280 \\ y - 20 = z \end{cases}$

B. $\begin{cases} x + y + z = 589.50 \\ 1.50x + 5.75y + 2.60z = 200 \\ x - 20 = z \end{cases}$

D. $\begin{cases} x + y + z = 200 \\ 1.50x + 5.75y + 2.60z = 589.50 \\ z - 20 = y \end{cases}$

amount = amount
$ = $
daisies - 20 = roses
20 fewer ...

10. The sum of two numbers is 11. The sum of their squares is 61. Find the two numbers

A. 9 and 3 C. 4 and 7
B. 8 and 1 D. 5 and 6

$x + y = 11$
$x^2 + y^2 = 61$

Easy way: $9+3=12$, $8+1=9$, $4+7=11$ ✓, $5+6=11$ ✓

$16 + 49 = 65$
$25 + 36 = 61$ ✓

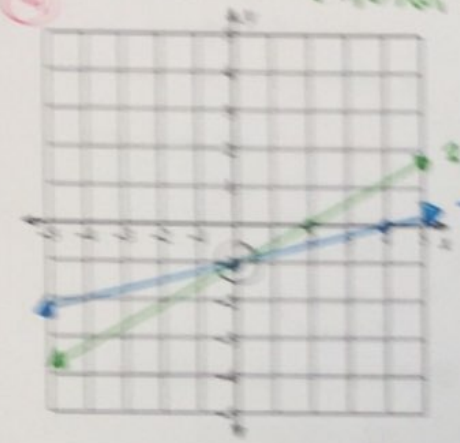
or solve by substituting $x = 11 - y$

Free Response. Show All Work.

Solve each system by graphing.

11. $\begin{cases} -x+4y=-4 \\ 2x-4y=4 \end{cases}$ (4,0)(0,-1) (2,0)(0,-1)

(4)



2x-4y=4 +1 graph

-x+4y=-4 +1 graph

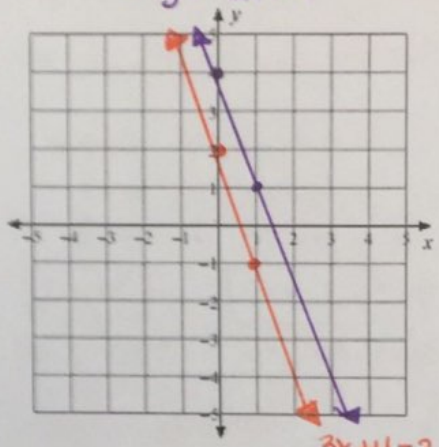
ch: 0-4=-4 ✓
0+4=4 ✓

Solution: (0,-1) +1 (0,-1) +1 parentheses

↖ Must be in point form if find a point...

12. $\begin{cases} 3x+y=2 \\ 4+3x=-y \end{cases}$ → y = -3x+2 → y = -3x+4

(4)



3x+y=2
+1 graph
+1 graph

Solution: no soln +2

b/c there is no point of intersection

Solve each system of equations by substitution or elimination. Write your answer as an ordered pair or triple. You must show all work!

(4) A B C

11. $\begin{cases} 4x-3y=10 \\ 5x+4y=-7 \end{cases}$ +2 SW

4x-3y=10
5x+4y=-7

-4x+3

-5x+4y=-20
5x+4y=-7

9y=-27
y=-3

5(1)+4y=-7
4y=-12
y=-3

(1,-3) +1 1,-3 +1 parentheses

ch: 4+9=10 ✓
5-12=-7 ✓

(4) A B C

13. $\begin{cases} 3x+4y=5 \\ 9x+12y=15 \end{cases}$

-3A+B

-9x-12y=-15
9x+12y=15

+2 SW!

0=0

infinitely many solns +2

b/c any number will make the statement 0=0 true!

14. $\begin{cases} 2x + y + 3z = -11 \\ -5x - y - z = 23 \\ 6x - 12z = -24 \end{cases}$ (10)

A+B → $2x + y + 3z = -11$
$-5x - y - z = 23$
D: $-3x + 2z = 12$

C → $6x - 12z = -24$

2D+C → $-6x + 4z = 24$
$6x - 12z = -24$
$-8z = 0$
$z = 0$

+2 SW

we found z, so we must find x & y

$6x - 12(0) = -24$
$x = -4$

$-5(-4) - y - (0) = 23$
$20 - y = 23$
$-y = 3$
$y = -3$

x, y, z

$\boxed{(-4, -3, 0)}$

+1 +1 +1
+1 parenthesis

ch: $-8 - 3 = -11$ ✓
$20 + 3 = 23$ ✓
$-24 = -24$ ✓

19. $\begin{cases} 8x^2 - 2x = 2y \\ y = x \end{cases}$ (7)

$8x^2 - 2x = 2(x)$ +1 substitute
$8x^2 - 4x = 0$ +1 set = to zero
$4x(2x - 1) = 0$ +1 factor

$4x = 0$	$2x - 1 = 0$
$x = 0$	$x = 1/2$
$y = 0$	$y = 1/2$
$\boxed{(0,0)}$	$\boxed{(1/2, 1/2)}$ or $(0.5, 0.5)$

ch: $0 - 0 = 0$ ✓ | che $8(0.5)^2 - 2(0.5) = 2(0.5)$
+2 only w/ parenthesis! | +2
$1 = 1$ ✓
$1/2 = 1/2$ ✓

For the following problems, define the variables, write a system of equations and solve. Show all work!

16. (5) Jenny and Trevon are selling pies for a school fundraiser. Customers can buy blueberry pies and lemon meringue pies. Jenny sold 9 blueberry pies and 5 lemon meringue pies for a total of $211. Trevon sold 9 blueberry pies and 4 lemon meringue pies for a total of $194. Find the cost of one blueberry pie. Find x

x = blueberry pies, y = lemon meringue pies

$9x + 5y = 211$ +1 Eqn
$-(9x + 4y = 194)$ +1 Eqn
$0 + y = 17$
+2 SW

$9x + 5(17) = 211$
$9x + 85 = 211$
$9x = 126$
$x = 14$

Blueberry pies cost $\boxed{\$14.^{00}}$ each
+1

17. Last Tuesday, Regal Cinemas sold a total of 8500 movie tickets. Proceeds totaled $64,600. Tickets can be bought in one of 3 ways: a matinee admission costs $5, student admission is $6 all day, and regular admissions are $8.50. How many of each type of ticket was sold if twice as many student tickets were sold as matinee tickets? (8)

$x + y + z = 8500$ +1 eqn

$5x + 6y + 8.50z = 64600$ +1 eqn

$y = 2x$ +1 eqn

$x + (2x) + z = 8500 \longrightarrow 3x + z = 8500$

$5x + 6(2x) + 8.50z = 64600 \rightarrow 17x + 8.5z = 64600$ +2 SW!

$-8.5A + B$

$-25.5x - 8.5z = -72250$

$17x + 8.5z = 64600$

$-8.5x = -7650$

$x = 900$

$y = 2(900)$

$y = 1800$

$z = 8500 - 900 - 1800$

$z = 5800$

check: $900 + 1800 + 5800 = 8500$ ✓

$5(900) + 6(1800) + 8.5(5800) = 64600$ ✓

$y = 2(900) = 1800$ ✓

Matinee: 900 tickets +1

Student: 1800 tickets +1

regular: 5800 tickets +1

Must tell me explicitely which number goes w/ which type of ticket!

18. The cost of two meals at a local restaurant is shown in the table below. (8)

Group	Total Cost
4 tacos, 2 enchiladas	$47
4 tacos, 3 enchiladas	$54.50

a. Define variables to represent the cost of a taco and the cost of an enchilada.

x = tacos +1

y = enchiladas +1

b. Write a system of equations to find the cost of a taco and the cost of an enchilada.

$\begin{cases} 4x + 2y = 47 \text{ +1 eqn} \\ 4x + 3y = 54.50 \text{ +1 eqn} \end{cases}$

c. Solve the system of equations, and explain what the solution means.

$y = 7.5$ +2 SW

$4x + 15 = 47$

$x = 8$

The cost of one taco is $8 +1

The cost of one enchilada is $7.50 +1

d. How much would a customer pay for 3 tacos and 5 enchiladas?

$3x + 5y = ?$

$3(8) + 5(7.5) =$ $61.50 +2

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