Name _____ Class _____ Date _____

Spring Break - Unit 6 Review

Form G

Solve each system by graphing.

Tell whether the system has *one solution*, *infinitely many solutions*, or *no solution*.

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

2. $3y - 4x = -6$
   $y = \frac{4}{3}x - 2$
   I.M.S.

3. $y = 3x - 4$
   $y - 3x = 1$
   No Sol.

Solve each system using substitution.

4. $y = 2x + 5$
   $y = 6x + 1$
   $2x + 5 = 6x + 1$
   $5 = 4x + 1$
   $4 = 4x$
   $1 = x$
   $y = 2(1) + 5$
   $y = 2 + 5$
   $y = 7$
   Sol. $(1, 7)$

5. $x = y + 7$
   $y - 8 = 2x$
   $y - 8 = 2(y + 7)$
   $y - 8 = 2y + 14$
   $-8 = y + 14$
   $-22 = y$
   $x = -22 + 7$
   $x = -15$
   Sol. $(-15, -22)$

6. $4x + y = 2$
   $3y + 2x = -1$
   $y = -4x + 2$
   $3(-4x + 2) + 2x = -1$
   $-12x + 6 + 2x = -1$
   $-10x + 6 = -1$
   $-6 \quad -6$
   $\frac{-10x}{-10} = \frac{-7}{-10}$
   $x = +7/10$ or $+.7$
   $y = -4(.7) + 2$
   $y = -2.8 + 2$
   $y = -.8$ or $-4/5$
   Sol $\left(\frac{7}{10}, -\frac{4}{5}\right)$ or $(.7, -.8)$

Solve each system using elimination.

7. $-x + 3y = 11$
   $+ \; 2x + 3y = 4$
   $x = -7$
   $-7 + 3y = 11$
   $+7 \quad +7$
   $\frac{3y}{3} = \frac{18}{3}$
   $y = 6$
   Sol $(-7, 6)$

8. $3(2x + 4y = -12)$
   $-6x + 5y = 2$
   $+ \; 6x + 12y = -36$
   $\frac{17y}{17} = \frac{-34}{17}$
   $y = -2$
   $-6x + 5(-2) = 2$
   $-6x - 10 = 2$
   $+10 \quad +10$
   $\frac{-6x}{-6} = \frac{12}{-6}$
   $x = -2$
   Sol $(-2, -2)$

9. $2(4x + 2y = 39)$
   $10x - 4y = -6$
   $+ \; 8x + 4y = 78$
   $\frac{18x}{18} = \frac{72}{18}$
   $x = 4$
   $4(4) + 2y = 39$
   $16 + 2y = 39$
   $-16 \quad -16$
   $\frac{2y}{2} = \frac{23}{2}$
   $y = 11.5$
   Sol. $(4, 11.5)$

Typo

Typo

Write a system of equations to model each situation. Solve by any method.

10. The sum of two numbers is 70. Their difference is 26. Write a system of equations that reflects the situation.
What are the two numbers?

$x + y = 70$
$+\ x - y = 26$
$2x = 96$
$x = 48$
$48 + y = 70$, $y = 22$
Sol 48 and 22

11. Two numbers have a sum -25 and a difference of -39
What are the two numbers?

$x + y = -25$
$+\ x - y = -39$
$2x = -64$
$x = -32$
$-32 + y = -25$, $y = 7$
Sol -32 and 7

12. The sum of two numbers is 90. The larger number is 14 more than 3 times the smaller number
What are the two numbers?
x bigger
y smaller

$x + y = 90$
$x = 14 + 3y$
$14 + 3y + y = 90$
$14 + 4y = 90$
$4y = 76$
$y = 19$
$x + 19 = 90$
$x = 71$
Sol 71, 19

13. You have ones & fives in your pocket. 61 bills total worth $201
How many fives & ones are there?

$x + y = 61$
$+\ 1x + 5y = 201$
$4y = 140$
$y = 35$
$x + 35 = 61$
$x = 26$
Sol 26, $1 bills 35, $5 bills

14. Penny has a collection of dimes and nickels. She has 95 coins totaling $4.90.
Find how many of each type of coin she has.

$x + y = 95$
$.10x + .05y = \$4.90$
$-1x + -.5y = -49$
$.5y = 46$
$y = 92$
$x + 92 = 95$
$x = 3$
Sol 3, dimes 92, nickels

15. A house on City St. cost $450 a month, plus a $900 deposit. A house on Town Ave. costs $600 a month with no deposit.

A) Define variable	B) Write equation	C) Solve	D) How many months do you need to live in City St. for it to be the cheaper option?
x = months	C.St. $450x + 900 = 600x$ T. Ave. $-450x \quad -450x$	$\frac{900}{150} = \frac{150x}{150}$ $6 = x$	7 months

16. Joe is going on vacation and need to leave his cats at a kennel. Best Cat Kennel charges $6 per day plus $50 processing fee. The Here Kitty-Kitty Kennel charges $8 per day and has a $35 processing fee. How many days until they will cost the same?

A) Define variable	B) Write equation	C) Solve	D) How long should your vacation be for it to make sense to use Best Cat Kennel?
x = days	B.C.K. $6x + 50 = 8x + 35$ H.K.K. $-6x \quad -6x$	$50 = 2x + 35$ $-35 \quad -35$ $\frac{15}{2} = \frac{2x}{2}$ $7.5 = x$	8 days

17. Jay's Body Shop pays $2400 a day for building rent & equipment. It usually costs $450 to put together the average car. If they sell a car for an average of $1,250, how many cars do they sell before they break even?

A) Define variable	B) Write equation for cost & income.	C) Solve
x = cars	Cost $2400 + 450x =$ Income $1250x$ $-450x \quad -450x$ $\frac{2400}{800} = \frac{800x}{800}$	3 cars

$3 = x$