REVIEW: Systems of Linear Equations

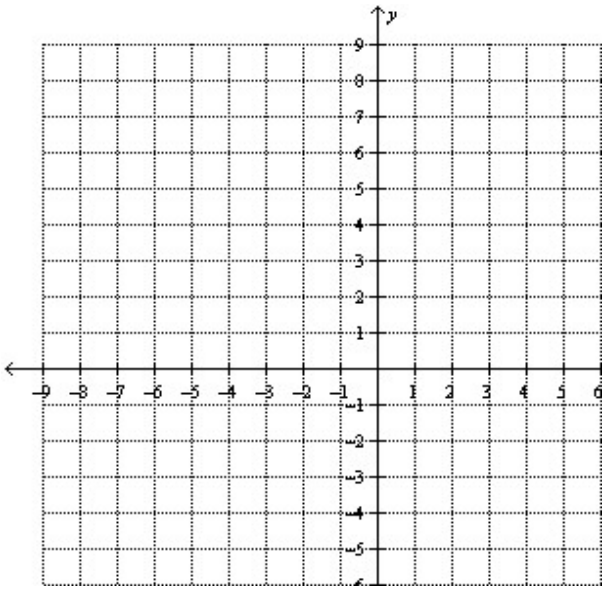
Name:_____

Accelerated 7th Grade Math

Solve the first three problems using the method specified. For the rest of the problems, you may choose which method you would like to use. Please show all of your work carefully.

1. Solve by graphing.

$y = \frac{4}{3} \cdot x - 2$ and $y = \frac{2}{3} \cdot x$



2. Solve by substitution.

$y = 2x + 5$
$y = 6x + 1$

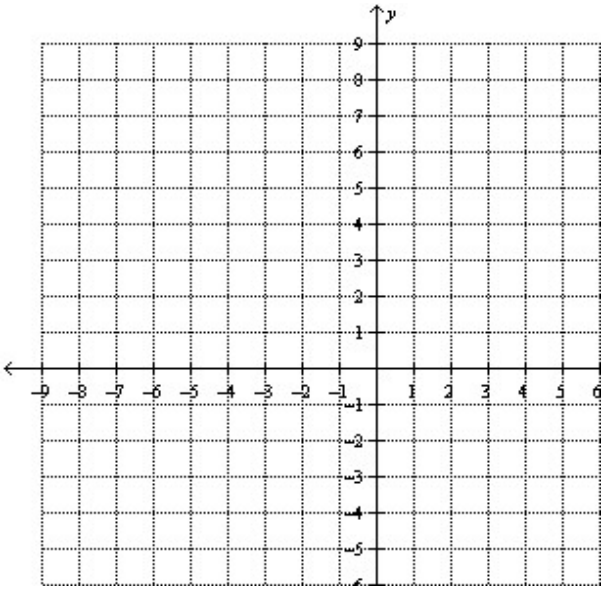
3. Solve by elimination.

$2x + 3y = 11$
$-2x + 9y = 1$

For numbers 4 – 11, circle the method that you used. Try to use each method at least once. (Note: You only need to use the graphing grids for the problems that you choose to solve by graphing.)

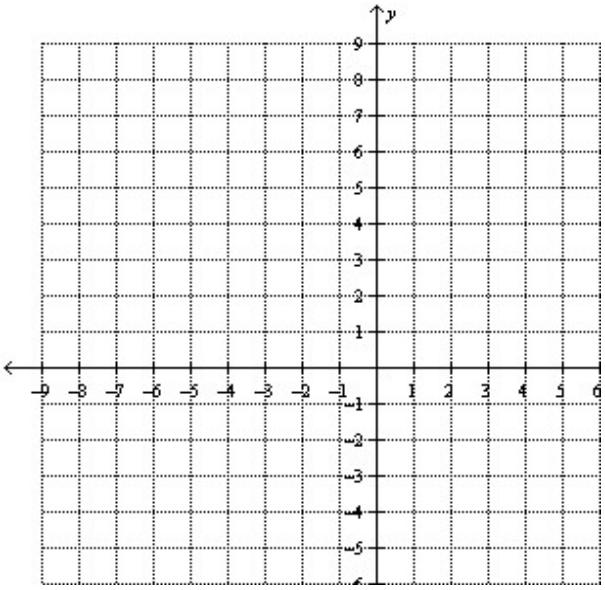
4. graphing substitution elimination

$7x + 2y = 10$
$-7x + y = -16$



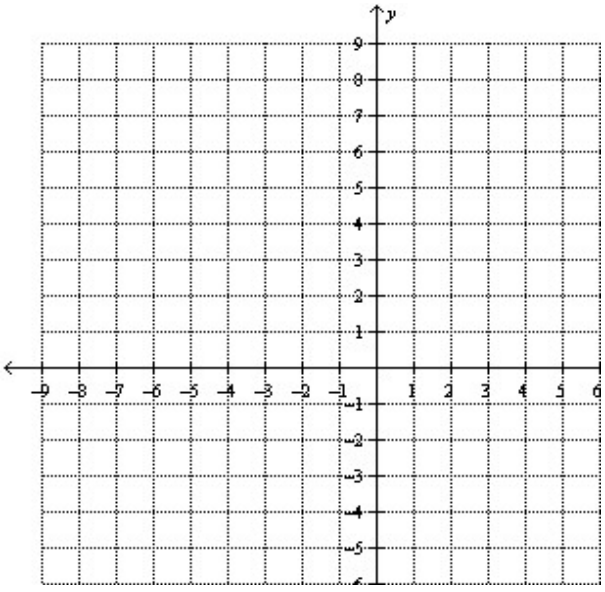
5. graphing substitution elimination

$5x + 2y = -9$
$y = -4x - 12$



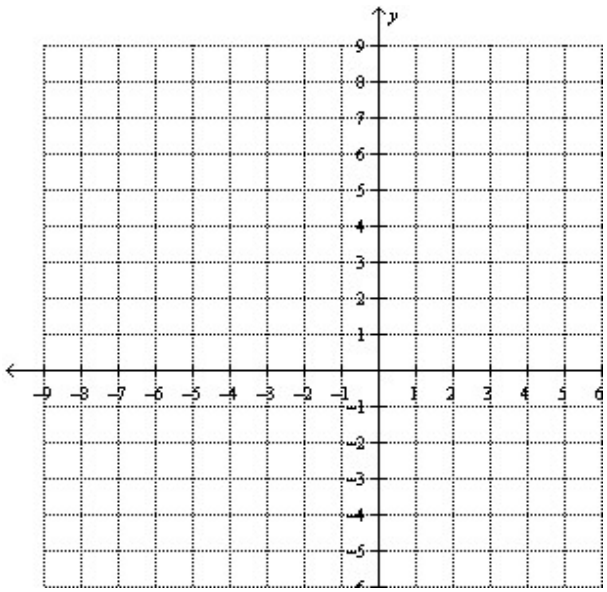
6. graphing substitution elimination

$3x + y = 4$
$6x + 2y = 8$



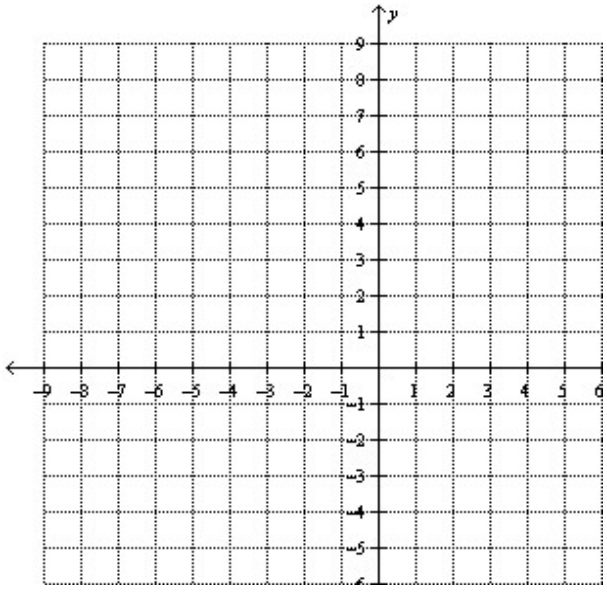
7. graphing substitution elimination

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



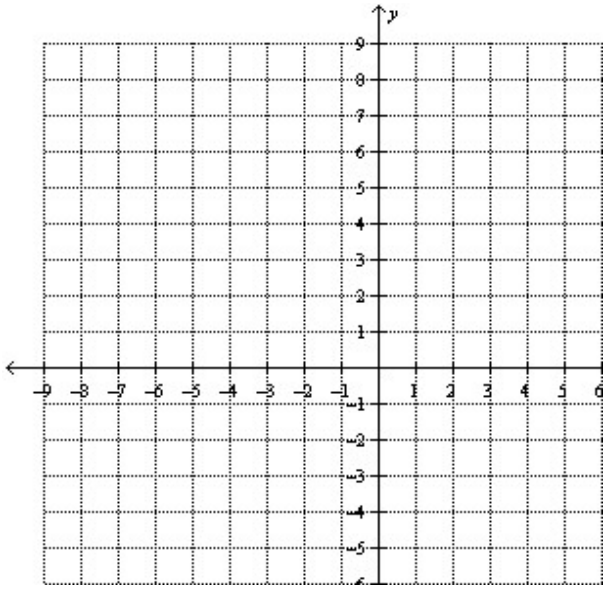
8. graphing substitution elimination

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



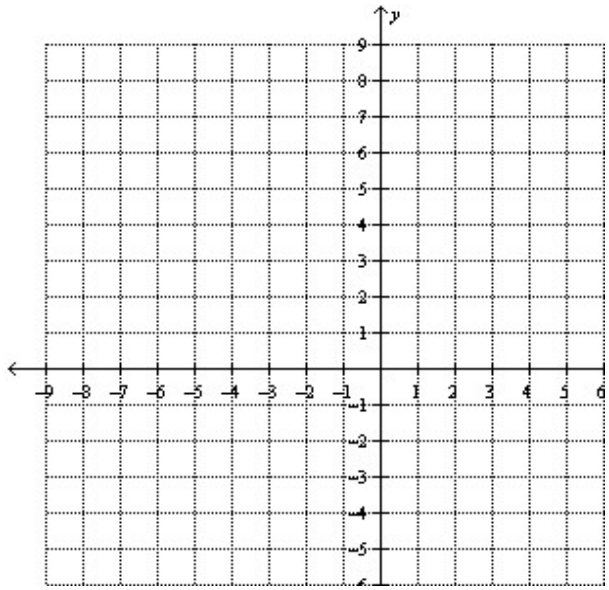
9. graphing substitution elimination

$y = -x + 5$
$y + 4x = 5$



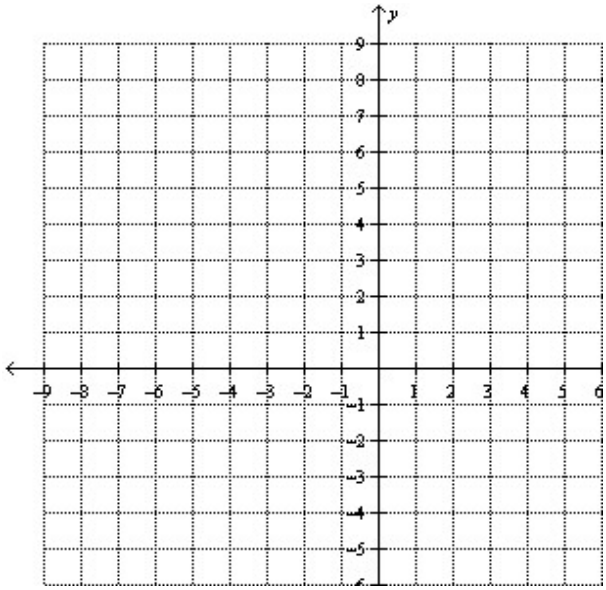
10. graphing substitution elimination

$y = 4x - 8$
$y = -2x + 10$



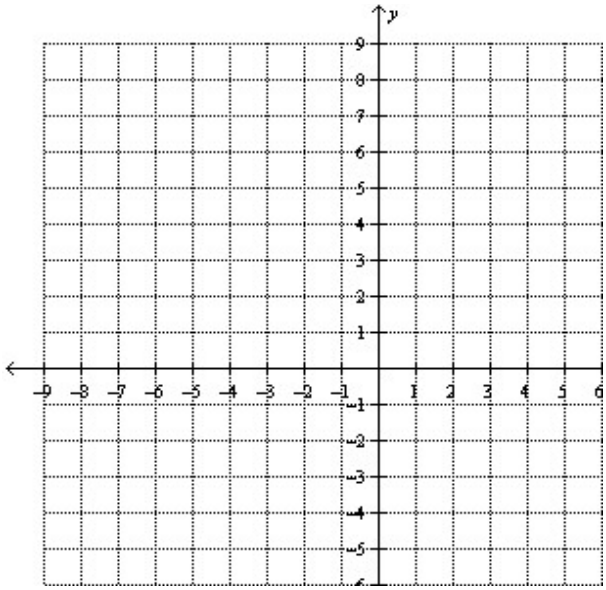
11. graphing substitution elimination

$y = -0.5x - 6$
$y = -6 - \frac{1}{2}x$



12. graphing substitution elimination

$y = 3x - 4$
$-6x + 2y = -8$



13. You and your friends form a band. You want to record a demo. Studio A rents to $100 plus $50 per hour. Studio B rents for $50 plus $75 per hour.

a. Write a system of linear equations to find each number.

b. Solve the system to find the value of each number. Then EXPLAIN what your solution means on the context of the story.

14. You ride an express bus from the center of town to your street. You have two payment options. Option A is to buy a monthly pass and pay $2 per ride. Option B is to pay $4.50 per ride. A monthly pass costs $50.

a. Write a system of linear equations to find each number.

b. Solve the system to find the value of each number. Then EXPLAIN what your solution means on the context of the story.

15. For each of the following, determine how many solutions the system will have, without graphing or solving. Explain how you know.

a. $y = 2x + 4$
$y = 4 + 2x$

b. $y = -3x + 7$
$y = 5x + 7$

c. $y = \frac{1}{2}x - 3$
$y = 0.5x - 4$

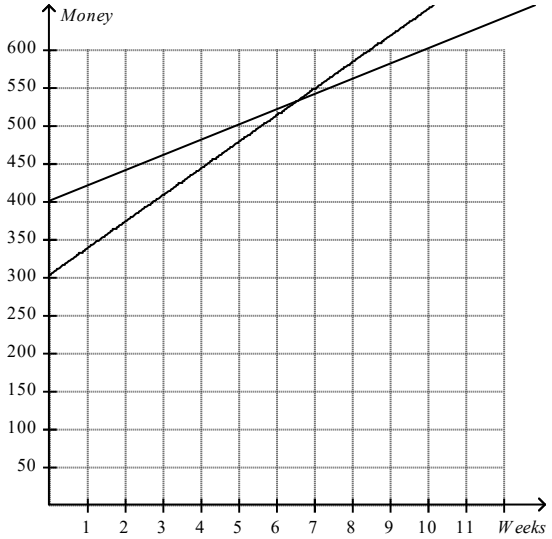
d. $-3x + y = 8$
$y = 4 + 8x$

e. $2x + y = 7$
$y = -2x + 7$

f. $6x + 3y = 12$
$y = -2x + 2$

16. The graph at the right illustrates the rate at which Dave and Joe are saving money.

a. *Estimate* the solution to the system and explain what this means in the context.



b. If the equations for each guy are…

Dave: $y = 35x + 300$ Joe: $-20x + y = 400$

Explain how you could you check to see if your estimate is correct?

c. Use the process you described in letter b to check your estimate.

Answers:

1) (3, 2)
2) (1, 7)
3) (4, 1)
4) (2, –2)
5) (–5, 8)
6) Infinitely many solutions
7) NS
8) (2, –6)
9) (0, 5)
10) (3, 4)
11) Infinitely many solutions
12) Infinitely many solutions
13) (2, 200)
14) (20, 90)
15) a. Inf
b. 1
c. 0
d. 1
e. Inf
f. 0
16) Answers vary