Name_____ Date_____

5.4 Practice B

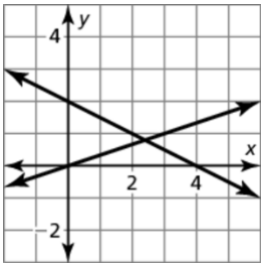
In Exercises 1–3, match the system of linear equations with its graph. Then determine whether the system has *one solution, no solution,* or *infinitely many solutions.*

1. $x - 3y = -3$
$-4x + 12y = 12$

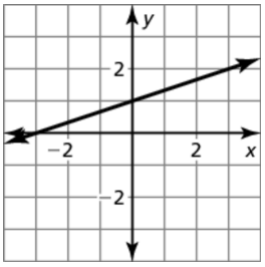
2. $x - 3y = 0$
$x + 2y = 4$

3. $x - 2y = -4$
$3x - 6y = 6$

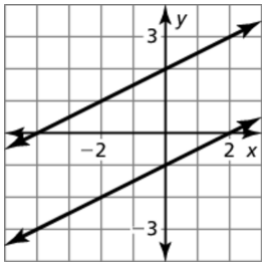
A.



B.



C.



In Exercises 4–9, solve the system of linear equations.

4. $3x - 3y = 6$
$-6x + 6y = -12$

5. $12x - 8y = 10$
$-6x + 4y = 5$

6. $4x - 3y = 16$
$x + y = -3$

7. $6x + 9y = -15$
$4x + 6y = 10$

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

9. $-5x + 2y = 3$
$10x - 4y = -6$

In Exercises 10–15, use only the slopes and *y*-intercepts of the graphs of the equations to determine whether the system of linear equations has *one solution, no solution,* or *infinitely many solutions*. Explain.

10. $x - 3y = 9$
$2x - 3y = 9$

11. $-3x + 8y = 32$
$6x - 16y = -64$

12. $2x + 2y = 2$
$9x + 9y = 9$

13. $2x - 4y = -24$
$3x - 6y = -24$

14. $y = -3x + 7$
$3x + 2y = -6$

15. $5x + y = -3$
$2y = -10x - 6$

16. Write a system of three linear equations in two variables so that two of the equations have infinitely many solutions, but the entire system has one solution.

17. Consider the system of linear equations $y = ax + 3$ and $y = \frac{1}{a}x - 2$.

a. If possible, find a value of a so that the system of linear equations has no solution.

b. If possible, find a value of a so that the system of linear equations has one solution.

Name _____ Date _____

5.3 Practice B

In Exercises 1–6, solve the system of linear equations by elimination. Check your solution.

1. $2x + y = 10$
$5x - y = 11$

2. $-3x + 2y = 14$
$4x - 2y = -16$

3. $x + 2y = 7$
$13 - 5y = x$

4. $10x - 11 = -3y$
$5y - 5 = -10x$

5. $2y - 4 = 3x$
$2x - 6 = 2y$

6. $8x + 3y = -5$
$3y = x + 4$

In Exercises 7–12, solve the system of linear equations by elimination. Check your solution.

7. $3x - 4y = 19$
$6x + 9y = 21$

8. $4x + 5y = 3$
$-3x + 2y = 38$

9. $8x + 2y = 22$
$5x - 3y = 35$

10. $4x + 7y = 1$
$6x - 3y = 15$

11. $21x - 11y = -9$
$-14x + 8y = 4$

12. $3x + 6y = 6$
$-2x - 9y = -24$

13. Describe and correct the error in solving for one of the variables in the linear system $4x + 5y = -10$ and $2x - 4y = 9$.

✗

Step 1 $4x + 5y = -10$
$2x - 4y = 9$

Step 2 (Multiply by 2.)
$4x + 5y = -10$
$4x - 8y = 18$

Step 3 $-3y = 8$
$y = -\frac{8}{3}$

In Exercises 14–16, solve the system of linear equations using any method. Explain why you chose the method.

14. $x - y = 3$
$x = \frac{1}{3}y + 5$

15. $x + 2y = \frac{5}{2}$
$3x - 5y = 2$

16. $4x - 5y = -3$
$14x + 2y = 9$

17. You and your friend are making 30 liters of sodium water. You have liters of 10% sodium and your friend has liters of 22% sodium. How many of your liters and how many of your friend's liters should you mix to make 30 liters of 15% sodium?