LESSON 165 Review: Systems of Linear Equations and Inequalities

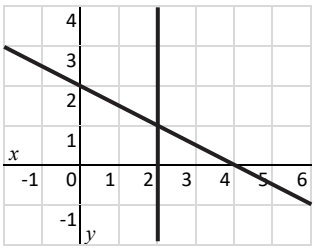
Try to complete as fast as you can. You may use a calculator unless otherwise specified.

1. $y = x + a$

$bx - y = 3$

If the solution to the system of equations above is $(2, 3)$, what is the value of ab ?

2. Which system of equations is graphed below?



A) $x = 2$
$x + 2y = 4$

B) $x = 2$
$x - 2y = 4$

C) $y = 2$
$x + 2y = 4$

D) $y = 2$
$x - 2y = 4$

3. $y = -x + 3$

$2x + 5y = 6$

What is the solution (x, y) to the system of equations above?

4. $x - 2y = 8$

$4x + y = 5$

If (x, y) satisfies the system of equations above, what is the value of $x - y$?

5. $x - 3y = 0$

$kx - 9y = 7$

For what value of k does the system of equations above have no solution?

6. Which system of equations has infinitely many solutions?

A) $x + y = 1$
$x + y = 2$

B) $x + y = 3$
$2x + y = 6$

C) $x + 2y = 0$
$2x + 4y = 0$

D) $x + y = 3$
$2x - 4y = 6$

7. Festival tickets cost \$9 for adults and \$5 for children. A group bought 8 tickets and paid \$52 in total. Which system of equations can be used to determine x, the number of adults, and y, the number of children in the group?

A) $x - y = 8$
$9x + 5y = 52$

B) $x + y = 8$
$9x + 5y = 52$

C) $x - y = 8$
$5x + 9y = 52$

D) $x + y = 8$
$5x + 9y = 52$

8. The sum of two integers is 36. The larger integer is 3 less than twice the smaller. What are the integers?

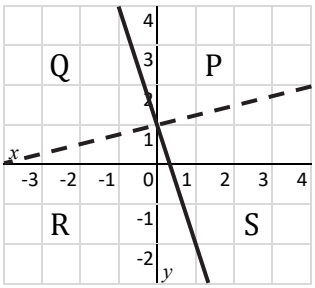
9. Adam used 20 flowers to make a bouquet of roses and lilies. Roses cost \$1.50 each and lilies cost \$2.50 each. He spent \$38 in total. How many roses and how many lilies did Adam use?

10. Three muffins and four cookies cost \$12.30. Five muffins and a dozen cookies cost \$28.50. How much does a muffin cost, and how much does a cookie cost?

11. $y \geq -3x + 1$

$y < \frac{1}{4}x + 1$

The system of inequalities above is graphed below. Which region represents all the solutions to this system?



A) Region P B) Region Q

C) Region R D) Region S

12. $x - y \leq 2$

$2x + y \leq 4$

In the system of inequalities above, what is the maximum possible value of x ?

13. Which system of inequalities has no solution?

A) $x + y > 1$
$x + y > 2$

B) $x + y < 1$
$x + y < 2$

C) $x + y > 1$
$x + y < 2$

D) $x + y < 1$
$x + y > 2$

14. A restaurant has a maximum capacity of 70 people. There are 4-seat tables and 6-seat tables. The owner wants to put at least 15 tables in the restaurant. What is the minimum number of 4-seat tables that the owner must put to satisfy the conditions described?

15. (CHALLENGE) What is the solution to the system of equations graphed below?