LESSON 83 Review: Systems of Linear Equations and Inequalities

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

1. $y = x + 2$

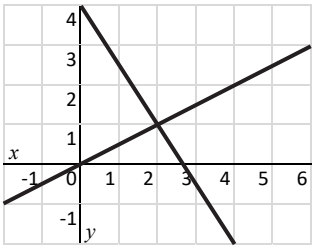
$2x + y = -1$

Which ordered pair satisfies the system of equations above?

A) $(1, 3)$ B) $(2, 0)$

C) $(-2, 0)$ D) $(-1, 1)$

2. The graph of a system of equations is shown below. If (x, y) is the solution to this system, what is the value of $x + y$?



3. $y = x + 1$

$3x - y = 3$

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

4. $2x + y = 8$

$3x - 2y = 5$

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

5. $x - 2y = 1$

$kx - 4y = 6$

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

6. Which system of equations has infinitely many solutions?

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

B) $y = -x + 1$
$2x + 2y = 2$

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

D) $x - 3y = 1$
$2x - 6y = 3$

7. John bought a notebook for \$2.25 with quarters and dimes. If he used 2 more quarters than dimes, which system of equations can be used to determine x, the number of quarters, and y, the number of dimes, he used?

A) $y = x + 2$
$0.25x + 0.1y = 2.25$

B) $y = x + 2$
$0.1x + 0.25y = 2.25$

C) $x = y + 2$
$0.25x + 0.1y = 2.25$

D) $x = y + 2$
$0.1x + 0.25y = 2.25$

8. The sum of two integers is 65 and their difference is 39. What are the integers?

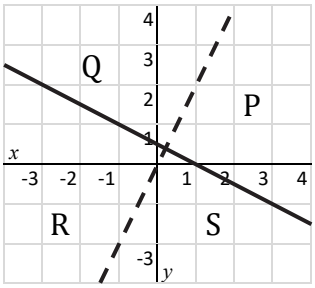
9. A 100-point test has a total of 32 questions. The multiple-choice questions are worth 2 points each, and the short-answer questions are worth 5 points each. How many questions of each type are on the test?

10. Linda bought sodas and hotdogs for a picnic. Sodas cost \$2 a bottle, and hotdogs cost \$6 each. She bought a total of 45 sodas and hotdogs and spent \$170. How many sodas did she buy?

11. $y > 2x$

$x + 2y \leq 1$

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. $y \geq -2x$

$y - 2 \leq 0$

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

13. Which system of inequalities has a solution set that is a line?

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

B) $x + y > 0$ $x + y < 1$

C) $x + y \leq 1$ $x + y \geq 1$

D) $x + y \leq 0$ $x + y \geq 1$

14. Jerry is planting a garden of carrots and tomatoes. The garden has room for no more than 40 plants. Jerry wants to plant more carrots than tomatoes. Write a system of inequalities relating the number of carrots, x, and the number of tomatoes, y.

15. Walnuts sell for \$6 per pound. Cashews sell for \$4 per pound. Chris wants to make at least 6 pounds of a mixture of walnuts and cashews within his budget of \$30. What is the minimum amount of cashews Chris must use to satisfy the conditions described?

16. (CHALLENGE) The system of equations $ax + y = 1$ and $bx + 2y = 5$ has no solution. What is the value of b/a ?