Algebra 1 Mastery Test #6 Review
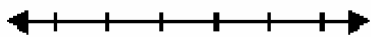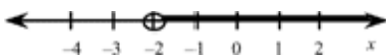
1. Write an equation in point-slope form of the line that passes through the points $(-5, -4)$ and $(6, 3)$.

2. Write an equation of the line that passes through $(-5, -1)$ and is parallel to the line $y = 4x - 6$.

3. Connie takes at least 47 seconds, s, to recite a poem. Write and graph an inequality to describe this situation.
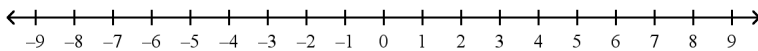

4. Write the inequality illustrated by the graph below.

5. Lev earns $5.65 per hour working after school. He needs at least $245 for a stereo system. Write and solve an inequality that describes how many hours he must work to reach his goal.
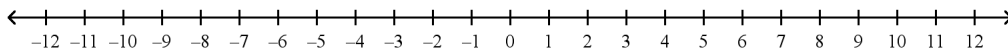
Solve and graph.

6. $-7(4x - 3) \le -7$

Solve. Graph your solution.

7. $-4 \leq 2x + 10 \leq 4$

8. The cost of a box of stationery ranges from \$2.05 to \$2.75. Write and graph an inequality to describe this statement.

Solve the inequality.

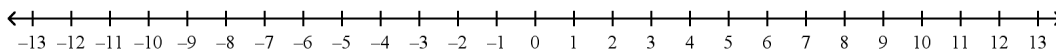9. $x + 5 > x + 7$ or $x + 3 \leq 3x - 4$

Solve.

10. $|4x + 2| = 3$

Solve the equation algebraically.

11. $|x - 2| - 2 = 7$

Solve. Graph your solution.
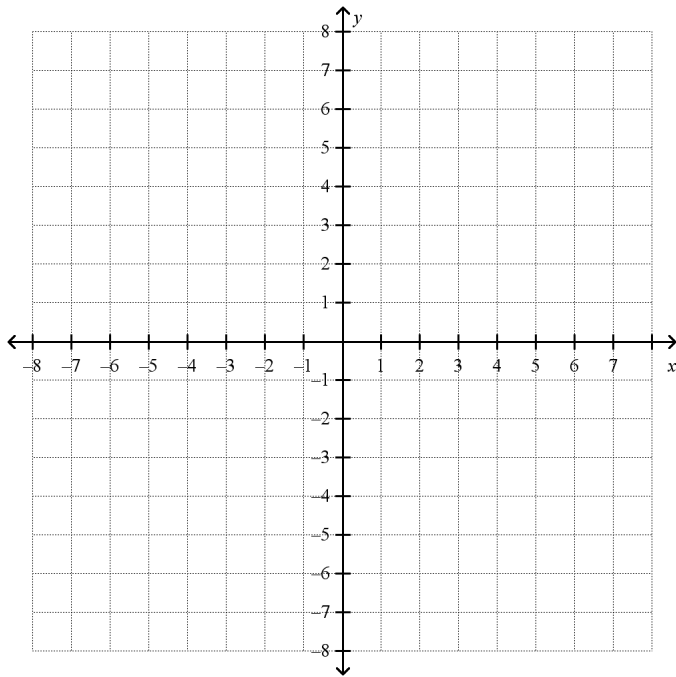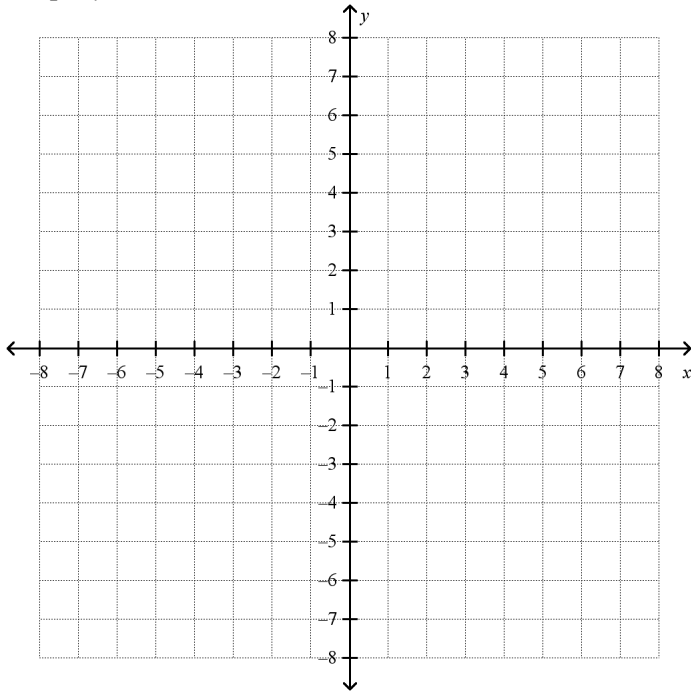
12. $|x + 3| \geq 3$

Graph.

13. $3x - 2y > -14$

14. Graph: $y \leq 2x + 4$

Solve by elimination:

15. $3x + 6y = 9$

    $x - 6y = 11$

Solve the system:

16. $x + 4y = -23$

    $-3x + y = 4$

17. Solve the system.

    $y = -4x + 4$

    $y = -x - 5$

18. The table below shows the costs of two different combinations of hot dogs and sodas at a ballgame. What is the cost h of one hot dog and the cost s of one soda?

Number of hot dogs	Number of sodas	Total Cost
4	4	$20
4	6	$24

19. Find two numbers whose sum is 33 and whose difference 13.

20. Use elimination to solve the linear system.
$$3x - 4y = 21$$
$$4x + 2y = 6$$

Describe the solution(s) of the system.

21.
$$6x + 4y = 10$$
$$18x + 12y = -20$$

22. Express each equation in slope-intercept form. Then determine, without solving the system, whether the system of equations has exactly one solution, no solution, or an infinite number of solutions.
$$15x + 5y = 5$$
$$-6x - 2y = -2$$

Solve the system of inequalities graphically:

23. $y \le 2x - 1$
$y < -3$

24. Graph the system of linear inequalities.

$y \geq -2x + 3$

$y \leq -3$

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Answer Section

1. ANS:

$$y + 4 = \frac{7}{11}(x + 5)$$

TOP: Lesson 4.3 Write Linear Equations in Point-Slope Form

2. ANS:
$$y = 4x + 19$$

TOP: Lesson 4.5 Write Equations of Parallel and Perpendicular Lines

3. ANS:
$$s \geq 47;$$

TOP: Lesson 5.1 Solve Inequalities Using Addition and Subtraction

4. ANS:
$$x > -2$$

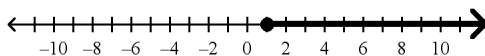TOP: Lesson 5.1 Solve Inequalities Using Addition and Subtraction

5. ANS:
$$5.65\, x \geq 245$$
$$x \geq 44 \text{ hours}$$

TOP: Lesson 5.2 Solve Inequalities Using Multiplication and Division
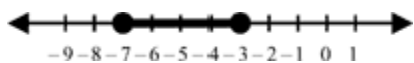
6. ANS:
$$x \geq 1$$

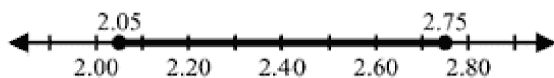TOP: Lesson 5.3 Solve Multi-Step Inequalities

7. ANS:
$$-7 \leq x \leq -3$$

TOP: Lesson 5.4 Solve Compound Inequalities

8. ANS:
$2.05 \leq c \leq 2.75$;

TOP: Lesson 5.4 Solve Compound Inequalities

9. ANS:
$$x \geq \frac{7}{2}$$
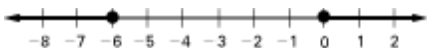
TOP: Lesson 5.4 Solve Compound Inequalities

10. ANS:
$$\frac{1}{4}, -\frac{5}{4}$$

TOP: Lesson 5.5 Solve Absolute Value Equations
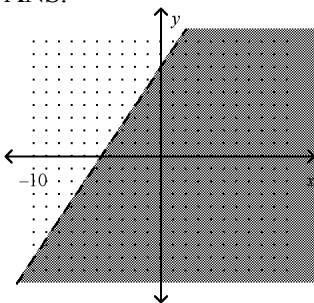
11. ANS:
$11, -7$

TOP: Lesson 5.5 Solve Absolute Value Equations

12. ANS:
$x \leq -6$ or $x \geq 0$

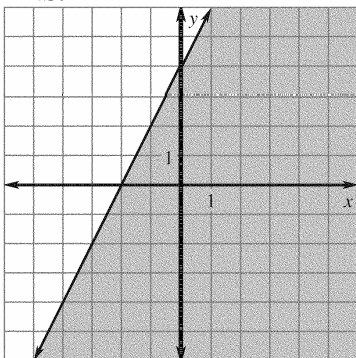TOP: Lesson 5.6 Solve Absolute Value Inequalities

13. ANS:

TOP: Lesson 5.7 Graph Linear Inequalities in Two Variables

14. ANS:

TOP: Lesson 5.7 Graph Linear Inequalities in Two Variables

15. ANS:
$(5, -1)$

TOP: Lesson 6.3 Solve Linear Systems by Adding or Subtracting

16. ANS:
$(-3, -5)$

TOP: Lesson 6.3 Solve Linear Systems by Adding or Subtracting

17. ANS:
$(3, -8)$

TOP: Lesson 6.3 Solve Linear Systems by Adding or Subtracting

18. ANS:
$h = \$3.00, s = \$2.00$

TOP: Lesson 6.3 Solve Linear Systems by Adding or Subtracting

19. ANS:
23 and 10

TOP: Lesson 6.3 Solve Linear Systems by Adding or Subtracting

20. ANS:
$(3, -3)$

TOP: Lesson 6.4 Solve Linear Systems by Multiplying First

21. ANS:
no solution

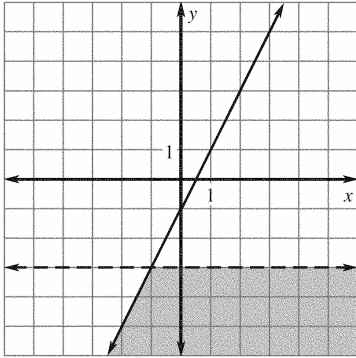TOP: Lesson 6.5 Solve Special Types of Linear Systems

22. ANS:
$y = -3x + 1$
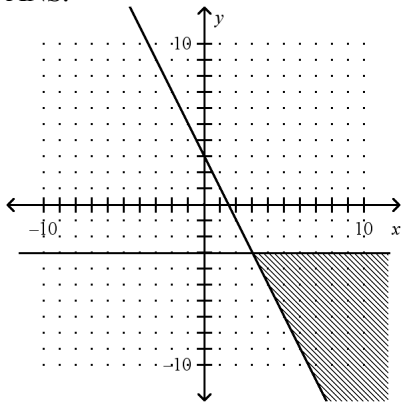$y = -3x + 1$
infinite number of solutions

TOP: Lesson 6.5 Solve Special Types of Linear Systems

23. ANS:

TOP: Lesson 6.6 Solve Systems of Linear Inequalities

24. ANS:

TOP: Lesson 6.6 Solve Systems of Linear Inequalities