Name _____ Date _____ Class _____

Performance Assessment Teacher Support
Linear Functions

Purpose:
To assess student understanding of using properties of equality to write and solve linear equations, writing and graphing linear functions, and solving problems involving transformations of the linear and absolute-value parent functions.

Time:
20–30 minutes

Grouping:
Individuals or partners

Preparation Hints:
Review how to find the intercepts of a function, inequalities in two variables, and transformations of absolute-value functions.

Introduce the Task:
Students are presented with the function $g(x) = 2|x + 3| - 4$. They are asked to graph the function, describe the transformation of the parent function $f(x) = |x|$ that it represents, and find the intercepts of the function. Students also graph an inequality involving the function and explain how they would check their graph of the inequality.

Performance Indicators:

____ Graphs function correctly.

____ Describes transformation.

____ Identifies intercepts of function using algebraic methods.

____ Graphs inequality correctly.

____ Explains process of checking inequality graph.

Scoring Rubric:

Level 4: Student solves problems correctly and gives good explanations.

Level 3: Student solves problems but does not give satisfactory explanations.

Level 2: Student solves some problems but does not give satisfactory explanations.

Level 1: Student is not able to solve any of the problems.

Holt Algebra 2

Name _____ Date _____ Class _____

Performance Assessment
Linear Functions

1. Graph $g(x) = 2|x + 3| - 4$.

0
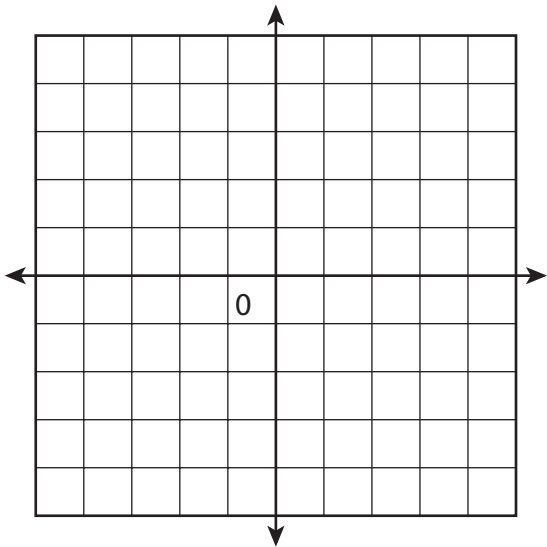
2. Describe the transformation of $f(x) = |x|$ that yields $g(x)$.

_____

_____

3. Use algebra to determine the *x*- and *y*-intercepts of $g(x)$. Show your work.
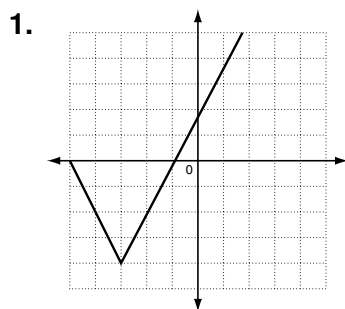
_____

_____

_____

_____

4. On the grid above, graph $y \le 2|x + 3| - 4$.

5. Explain how you can show that the region you have shaded in Problem 4 is correct.

_____

_____

Holt Algebra 2

Answer Key continued

15. $g(x) = \frac{9}{2}x - 4$

16. positive correlation, $y = \frac{3}{4}x + 25$

17. all real numbers

18. $x = \frac{9}{5}$

19. $-1 < x < \frac{3}{5}$

20. $g(x) = -(2\,|x - 4| - 2)$

21. $g(x) = |x - 3| + 1$

Performance Assessment

1.

2. $f(x)$ vertically stretched by a factor of 2, translated horizontally left 3 units, then translated vertically down 4 units yields $g(x)$

3. x-intercepts: $(-1, 0)$ and $(-5, 0)$; y-intercept $(0, 2)$

4. region below graph should be shaded with boundary line included

5. Answers should include discussion of choosing a point in the solution region and verifying that it satisfies the inequality.

Cumulative Test

1. B

2. J

3. B

4. H

5. D

6. H

7. B

8. F

9. D

10. F

11. B

12. H

13. B

14. G

15. B

16. J

17. D

18. H

19. C

20. H

21. C

22. F

23. B

24. F

25. D

26. H

27. A

28. F

29. D

30. F

31. D

32. H

33. B

34. H

35. A

36. G

37. D

38. H

39. B

40. F

41. C

42. J

43. C

Holt Algebra 2