PRACTICE & PROBLEM SOLVING

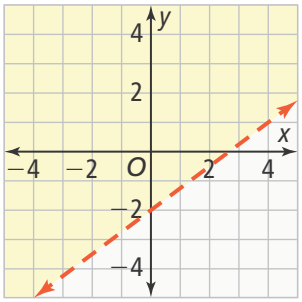
Scan for Multimedia

Practice Tutorial

Additional Exercises Available Online

UNDERSTAND

10. Look for Relationships Which inequality, $y > \frac{3}{4}x - 2$ or $3x - 4y < 8$, is shown by the graph? Explain.



11. Error Analysis Describe and correct the error a student made in determining whether the ordered pair (1, 1) is a solution of the inequality $y \leq -4x + 5$.

$y \leq -4x + 5$
$1 \leq -4(1) + 5$
$1 \leq -4 + 5$
$1 \leq 1$

Since 1 is not less than 1, the inequality is not true. So, (1, 1) is not a solution of the inequality. ✗

12. Higher Order Thinking What is the graph of the inequality $x < y + 3$? How is this graph different from the graph of the inequality $y < x + 3$?

13. Reason Write an inequality in two variables for which (3, 7) and (−2, 3) are solutions.

14. Mathematical Connections Compare the graph of a linear inequality $x < 4$ on a number line with its graph on a coordinate plane. How are they similar?

15. Generalize Explain why you can immediately determine which side of the line to shade when an inequality in two variables is solved for y.

PRACTICE

Graph each inequality in the coordinate plane.

SEE EXAMPLES 1, 2 AND 4

16. $y \geq -2x + 3$

17. $y < x - 6$

18. $y \leq \frac{2}{3}x - 1$

19. $y > x - 2$

20. $y < -0.5x + 2$

21. $y \geq 1.5x - 4$

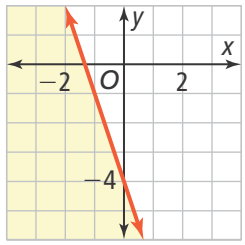
22. $2x > 12$

23. $-2y \leq 6$

What inequality is shown by each graph?

SEE EXAMPLE 3

24.



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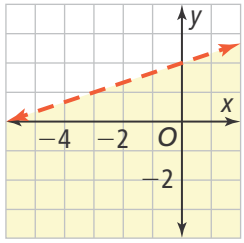

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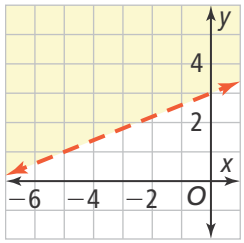
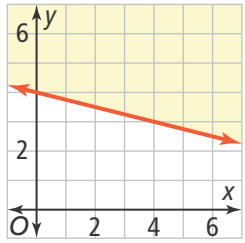


27.



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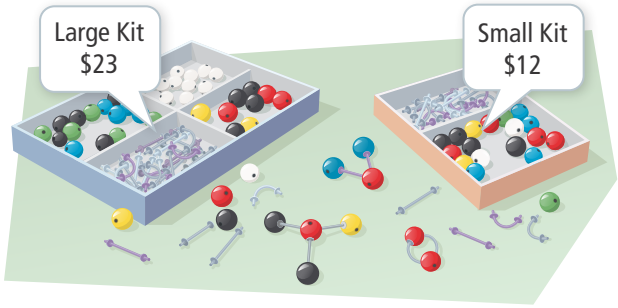
Mixed Review Available Online

APPLY

28. Make Sense and Persevere A school has $600 to buy molecular sets for students to build models.

a. Write and graph an inequality that represents the number of each type of molecular set the school can buy.



b. Suppose the school decides to buy 20 of the large kits. How many of the small kits can the school now afford?

29. Model With Mathematics A freight elevator can hold a maximum weight of 2,500 pounds. A 180-pound person has a load of boxes to deliver. Some of the boxes weigh 25 pounds each and some weigh 60 pounds each.

a. Write and graph an inequality that represents the number of boxes the elevator can hold in one trip if the person is not in the elevator.

b. Write and graph an inequality that represents the number of boxes the elevator can hold in one trip if the person rides in the elevator.

c. Compare the graphs of the two inequalities.

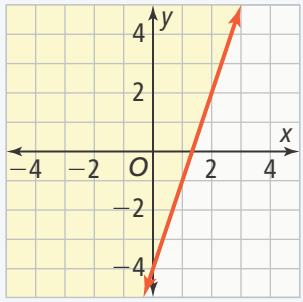
30. Make Sense and Persevere A soccer team holds a banquet at the end of the season. The team needs to seat at least 100 people and plans to use two different-sized tables. A small table can seat 6 people, and a large table can seat 8 people. Write a linear inequality that represents the numbers of each size table the team needs. Graph the inequality. If the school has 5 small tables and 9 large tables, will this be enough for the banquet?

ASSESSMENT PRACTICE

31. Choose *Yes* or *No* to tell whether each ordered pair is a solution of the inequality $y > 7x - 3$.

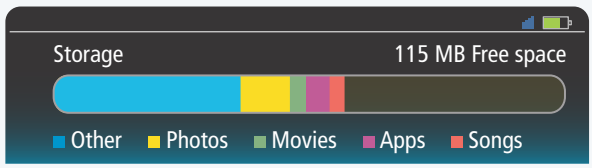
	Yes	No
a. (2, 15)	❑	❑
b. (−3, −15)	❑	❑
c. (0, −3)	❑	❑
d. (1, 5)	❑	❑

32. SAT/ACT What inequality is shown by the graph?



Ⓐ $y > 3x - 4$
Ⓑ $y > 4x - 3$
Ⓒ $y \geq 3x - 4$
Ⓓ $y \geq 4x - 3$

33. Performance Task A phone has a certain amount of storage space remaining. The average photo uses 3.6 MB of space and the average song uses 4 MB of space.



Part A Write a linear inequality to represent how many additional photos x and songs y the phone can store.

Part B Graph the inequality. Describe how the number of photos that are stored affects the number of songs that can be stored.

Part C Does the graph make sense outside of the first quadrant? Explain.