Name_____

Solve the problem.

1) Yvette has up to $2000 to invest and has chosen to put her money into telecommunications and pharmaceuticals. The telecommunications investment is to be no more than 5 times the pharmaceuticals investment. Write a system of inequalities to describe the situation. Let x = amount to be invested in telecommunications and y = amount to be invested in pharmaceuticals.

2) Yvette has up to $7000 to invest and has chosen to put her money into telecommunications and pharmaceuticals. The telecommunications investment is to be no more than 3 times the pharmaceuticals investment. Write a system of inequalities to describe the situation. Let x = amount to be invested in telecommunications and y = amount to be invested in pharmaceuticals.

3) Marcus is planting a section of garden with tomatoes and cucumbers. The available area of the section is 140 square feet. He wants the area planted with tomatoes to be more than 30% of the area planted with cucumbers. Write a system of inequalities to describe the situation. Let x = amount to be planted in tomatoes and y = amount to be planted in cucumbers.

4) Marcus is planting a section of garden with tomatoes and cucumbers. The available area of the section is 130 square feet. He wants the area planted with tomatoes to be more than 30% of the area planted with cucumbers. Write a system of inequalities to describe the situation. Let x = amount to be planted in tomatoes and y = amount to be planted in cucumbers.

5) Benjamin never has more than 18 hours free during the week. He is trying to make a weekly plan for dividing his free time between reading and working out. He wants to spend at least 4 hours per week reading. Write a system of inequalities to describe the situation. Let x = amount of time for reading and y = amount of time for working out.

6) Benjamin never has more than 21 hours free during the week. He is trying to make a weekly plan for dividing his free time between reading and working out. He wants to spend at least 7 hours per week reading. Write a system of inequalities to describe the situation. Let x = amount of time for reading and y = amount of time for working out.

7) Mrs. White wants to crochet beach hats and baby afghans for a church fund–raising bazaar. She needs 4 hours to make a hat and 9 hours to make an afghan and she has 36 hours available. Thus, $4x + 9y \leq 36$, where x is the number of hats and y is the number of afghans. Can she make 9 hats and 4 afghans in the time allowed?

8) Mrs. White wants to crochet beach hats and baby afghans for a church fund–raising bazaar. She needs 4 hours to make a hat and 6 hours to make an afghan and she has 24 hours available. Thus, $4x + 6y \leq 24$, where x is the number of hats and y is the number of afghans. Can she make 9 hats and 0 afghans in the time allowed?

9) An office manager needs to buy new filing cabinets. Cabinet A takes up 7 square feet of floor space. Cabinet B takes up 6 square feet of floor space. The office has room for no more than 42 square feet of cabinets. Thus, $7x + 6y \leq 42$, where x is the number of A cabinets and y is the number of B cabinets. Does the office have enough floor space for 1 A cabinets and 5 B cabinets?

10) An office manager needs to buy new filing cabinets. Cabinet A takes up 8 square feet of floor space. Cabinet B takes up 9 square feet of floor space. The office has room for no more than 72 square feet of cabinets. Thus, $8x + 9y \leq 72$, where x is the number of A cabinets and y is the number of B cabinets. Does the office have enough floor space for 8 A cabinets and 4 B cabinets?

11) Benjamin never has more than 19 hours free during the week. He is trying to make a weekly plan for dividing his free time between reading and working out. He wants to spend at least 5 hours per week reading. Write a system of inequalities to describe the situation. Let x = amount of time for reading and y = amount of time for working out.

12) Yvette has up to $3000 to invest and has chosen to put her money into telecommunications and pharmaceuticals. The telecommunications investment is to be no more than 5 times the pharmaceuticals investment. Write a system of inequalities to describe the situation. Let x = amount to be invested in telecommunications and y = amount to be invested in pharmaceuticals.

13) An office manager needs to buy new filing cabinets. Cabinet A takes up 4 square feet of floor space. Cabinet B takes up 6 square feet of floor space. The office has room for no more than 24 square feet of cabinets. Thus, $4x + 6y \leq 24$, where x is the number of A cabinets and y is the number of B cabinets. Does the office have enough floor space for 4 A cabinets and 1 B cabinets?

Graph the solution of the system or indicate that there is no solution.

14) $x + y > -3$
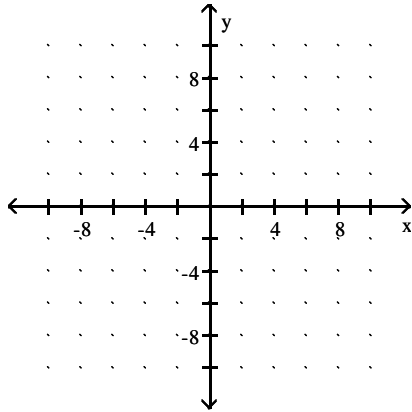 $x - y \le 5$
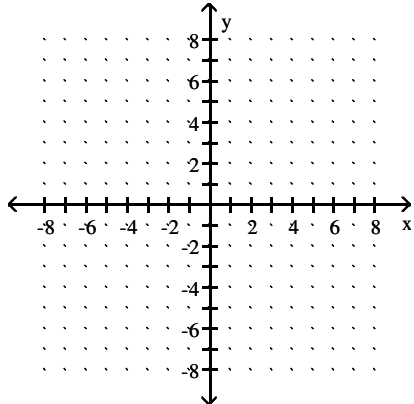
16) $2x + y \ge 4$
     $x > 1$
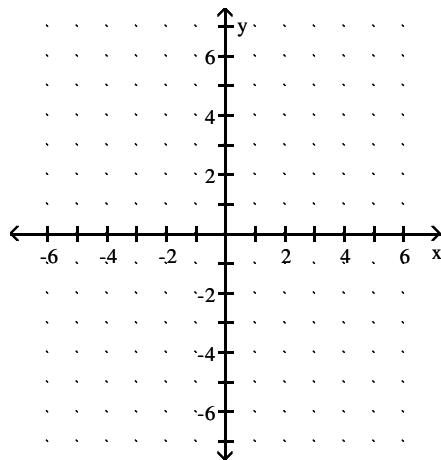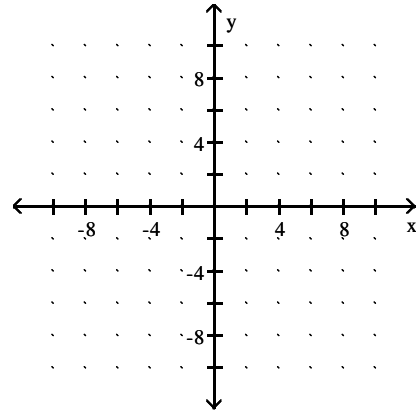
15) $x + y > 2$
     $x - y \le 1$

17) $x + 2y \ge 2$
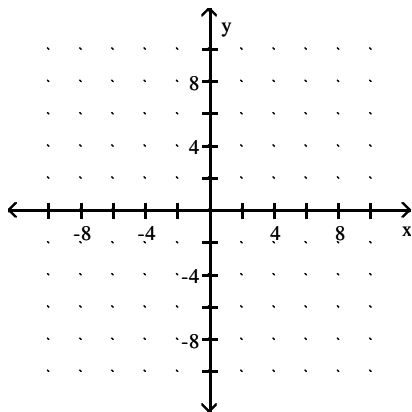 $x - y \le 0$

3
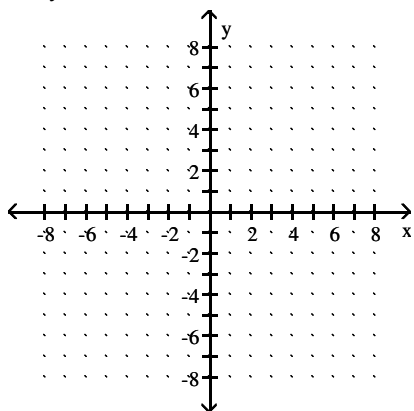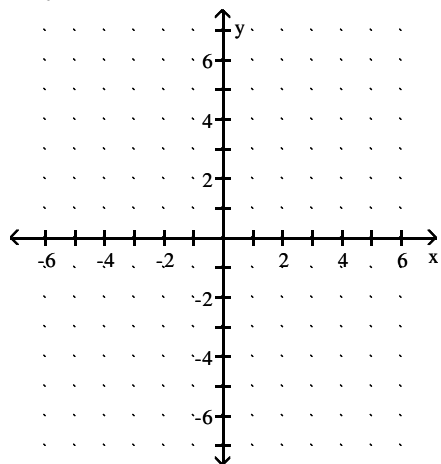
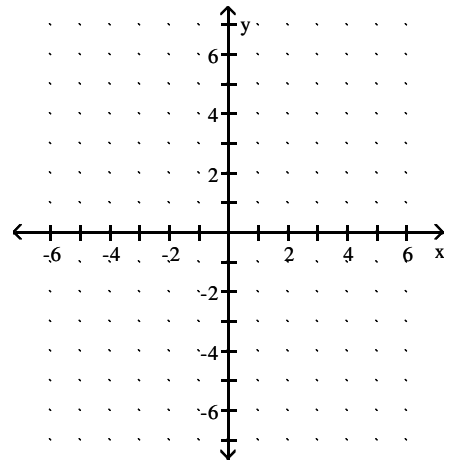18) $y \geq x + 1$
   $y \leq 3 - x$
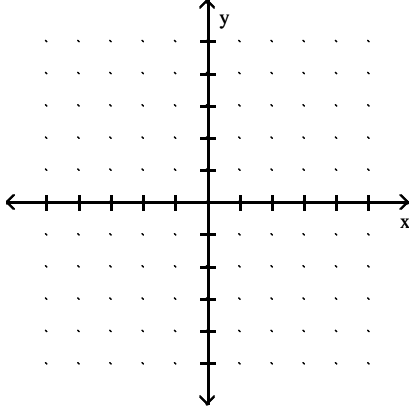
20) $y \geq 2x - 4$
   $y \leq 3 - x$
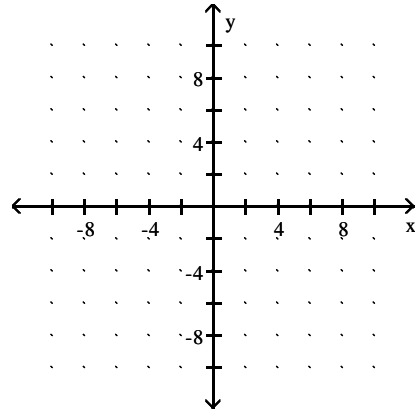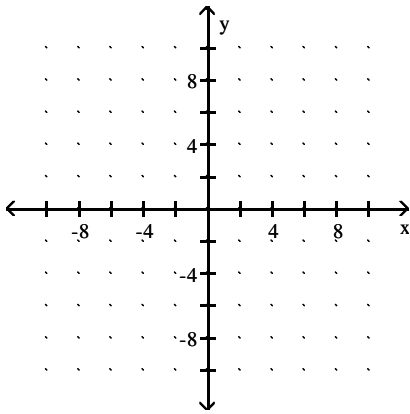
19) $y \geq x - 3$
   $y \leq 4 - x$

21) $2x + y \geq 4$
   $x > 1$
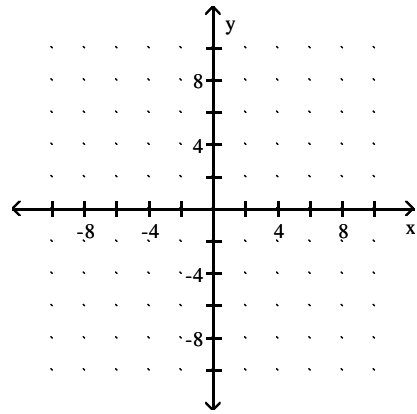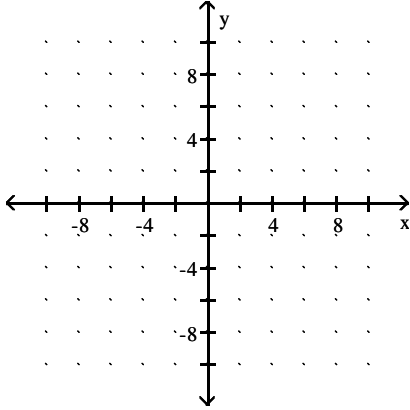
4

22) $x + 4y > 8$
    $y \geq 1$

23) $y < 2x - 1$
    $y \leq \frac{2}{3}x$

24) $y < 3x + 3$
    $y \leq \frac{2}{3}x$

25) $3x + y < 3$
    $3x + y > 1$

5

26) $2x + y < 10$
   $2x + y > -1$

27) $2x - y \le 8$
   $x + 2y \ge -4$

28) $3x - y \le 9$
   $x + 4y \ge -8$

29) $2x + y \ge 4$
   $x > 1$

6

30) $5x + 3y > 6$
    $x - 3y < -6$

31) $5x + 2y > -6$
    $x - 3y < 6$

32) $y > -4$
    $x \geq 4$

33) $y > -2$
    $x \geq 1$

7
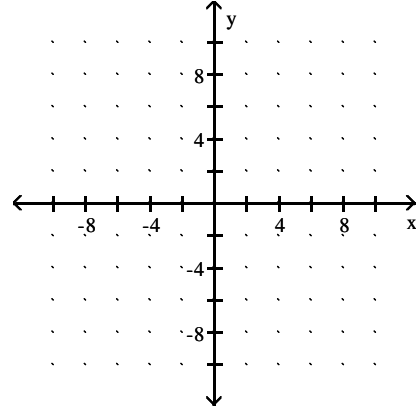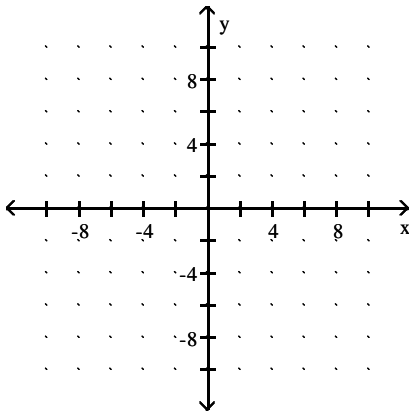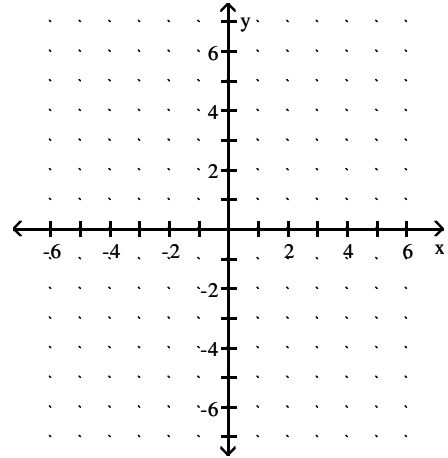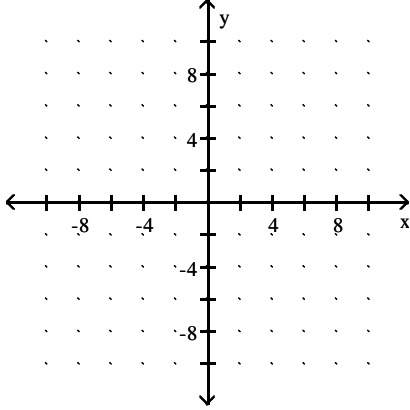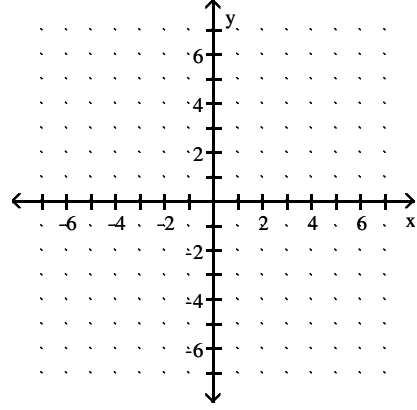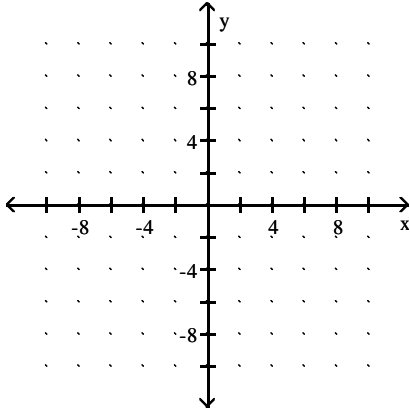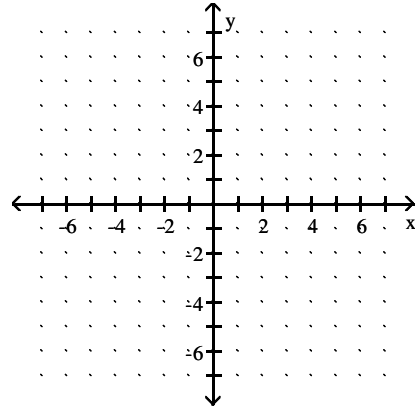
34) $2x + 3y \geq 6$
   $x - y \leq 3$
   $y \leq 2$
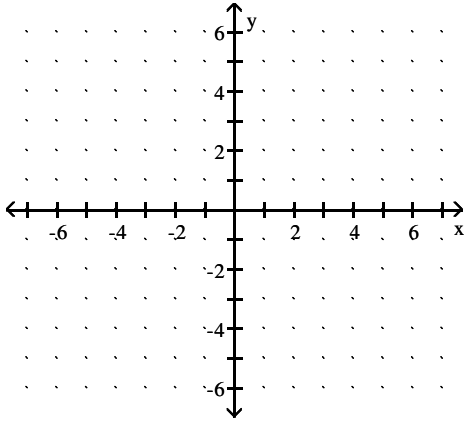
36) $7x + 4y \leq 28$
   $x + y \leq 5$
   $x \geq 0$
   $y \geq 0$
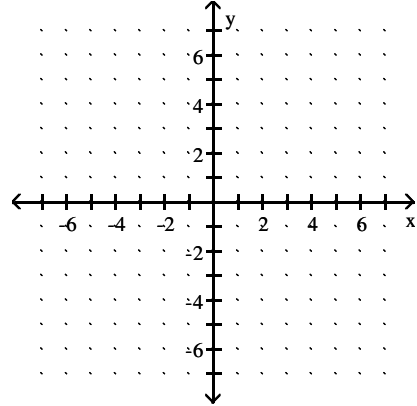
35) $6x + 3y \leq 18$
   $x + y \leq 4$
   $x \geq 0$
   $y \geq 0$
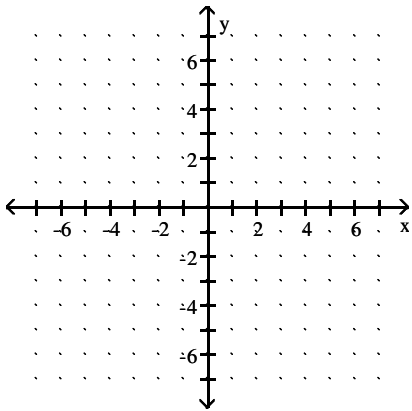
37) $-2x + y > 8$
   $-2x + y < -1$
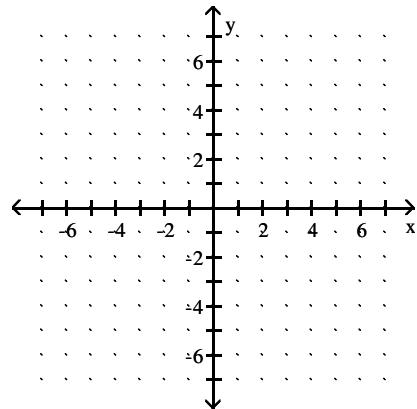
38) $2x + y > 4$
$2x + y < 1$
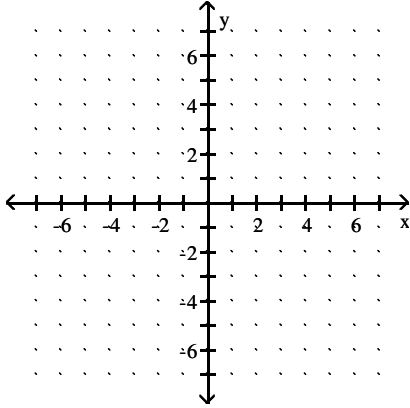
39) $y \geq 2x - 4$
$x + 2y \leq 7$
$x \geq -2$
$y \leq 1$

40) $7x + 3y \leq 21$
$x + y \leq 6$
$x \geq 0$
$y \geq 0$

41) $7x + 2y \leq 14$
$x + y \leq 4$
$x \geq 0$
$y \geq 0$

9
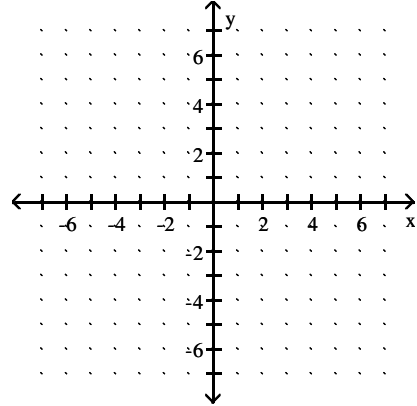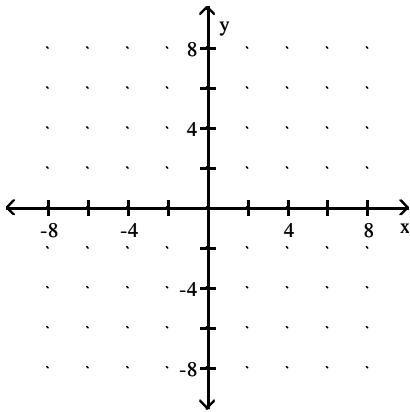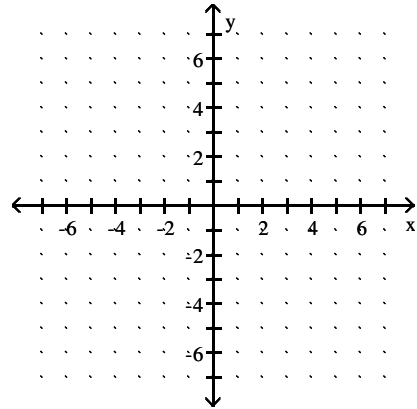
1) $x + y \leq 2000$
   $x \leq 5y$
   $x \geq 0$
   $y \geq 0$
2) $x + y \leq 7000$
   $x \leq 3y$
   $x \geq 0$
   $y \geq 0$
3) $x + y \leq 140$
   $x > 0.30y$
   $x \geq 0$
   $y \geq 0$
4) $x + y \leq 130$
   $x > 0.30y$
   $x \geq 0$
   $y \geq 0$
5) $x + y \leq 18$
   $x \geq 4$
   $y \geq 0$
6) $x + y \leq 21$
   $x \geq 7$
   $y \geq 0$
7) No
8) No
9) Yes
10) No
11) $x + y \leq 19$
   $x \geq 5$
   $y \geq 0$
12) $x + y \leq 3000$
   $x \leq 5y$
   $x \geq 0$
   $y \geq 0$
13) Yes
14)
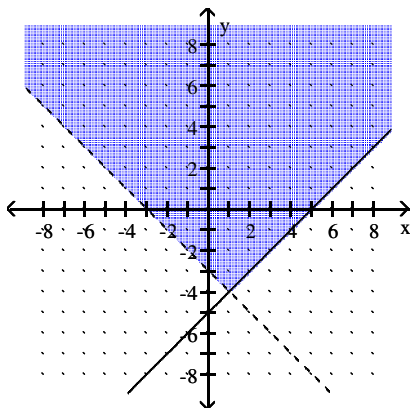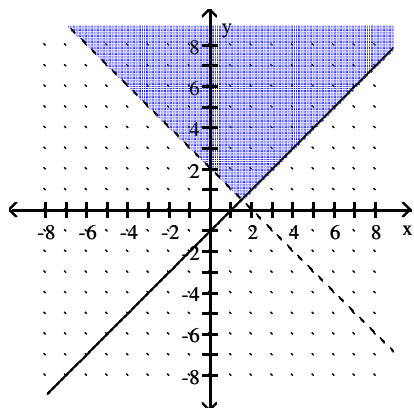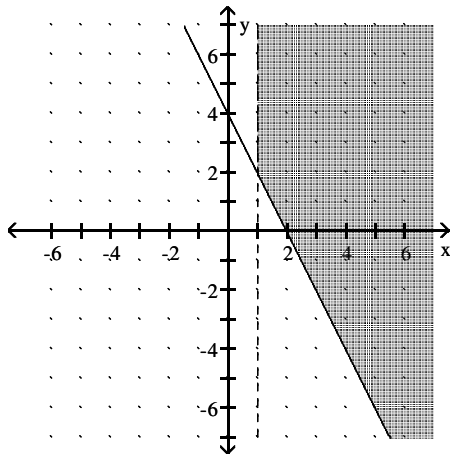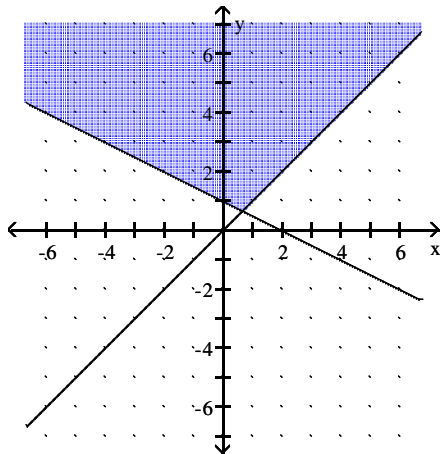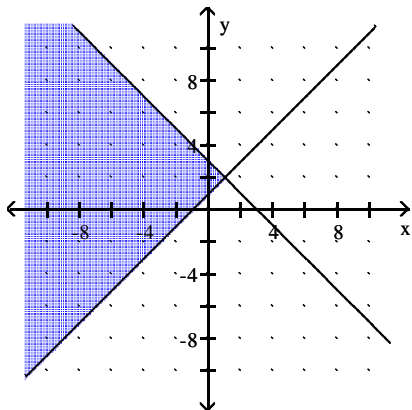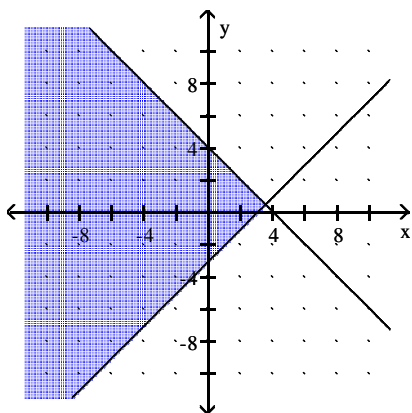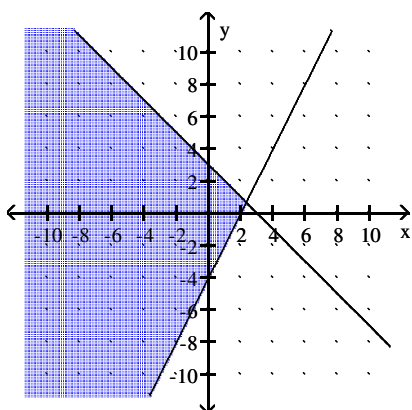
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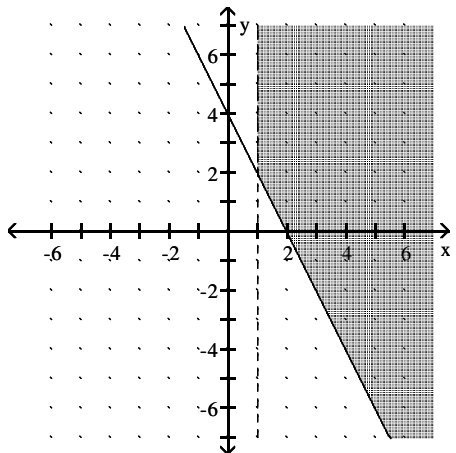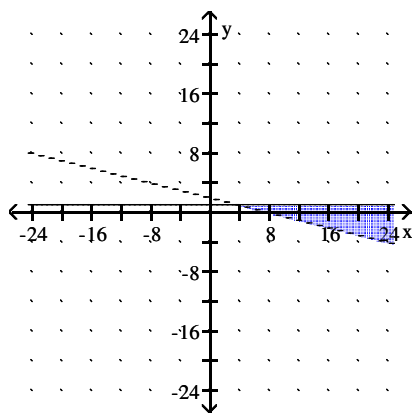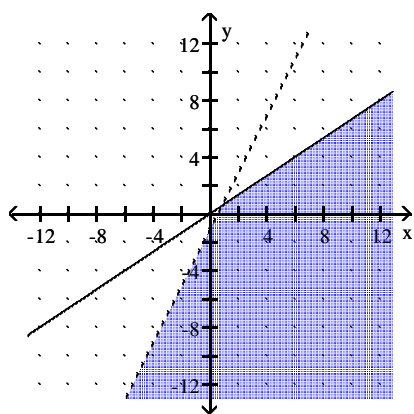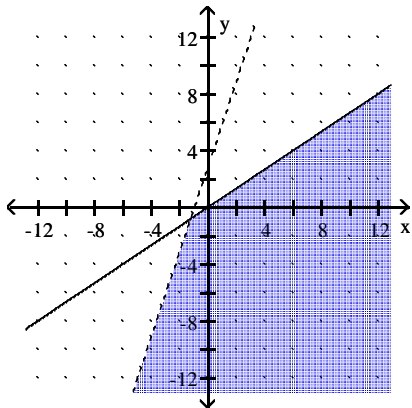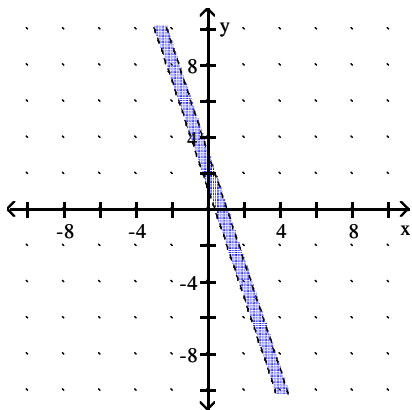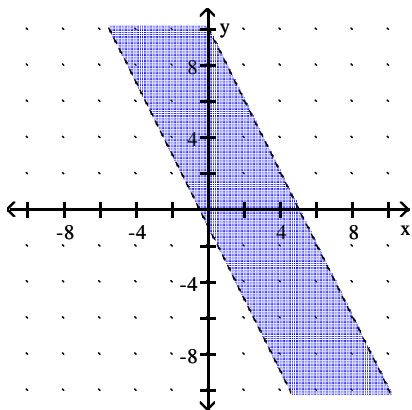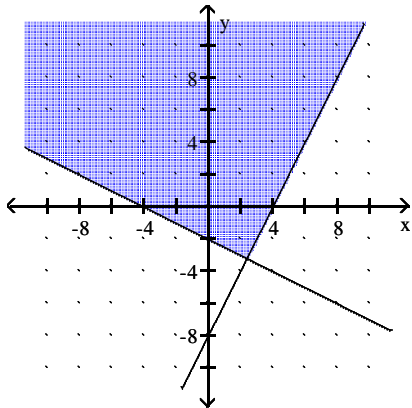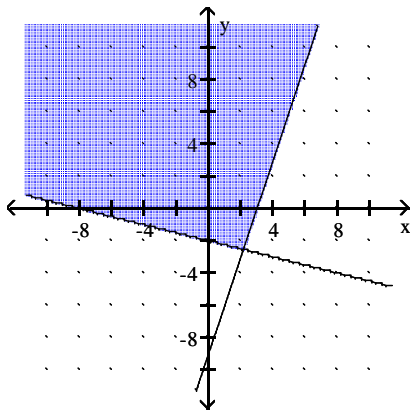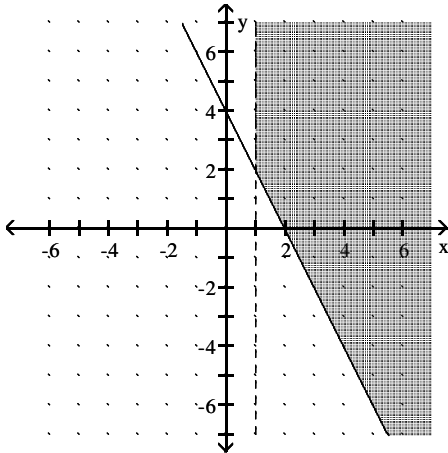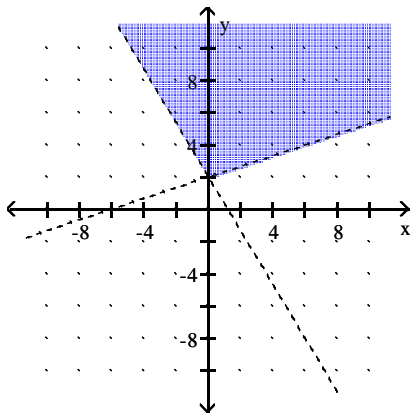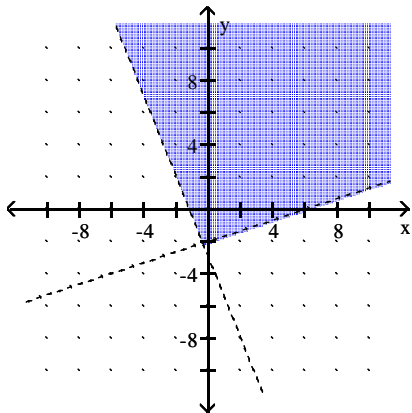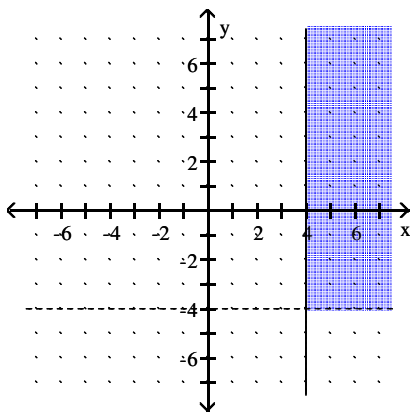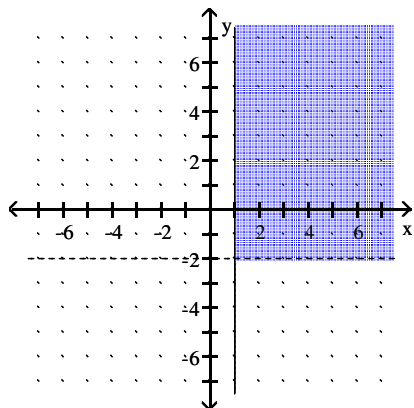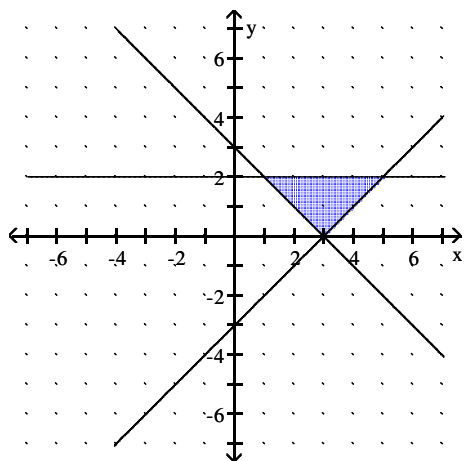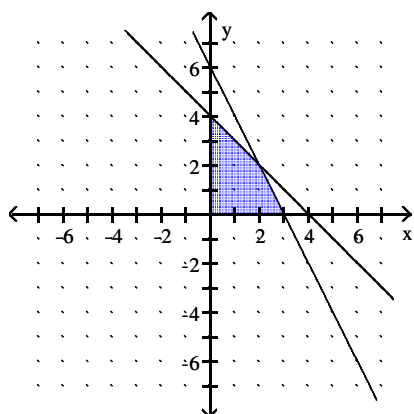
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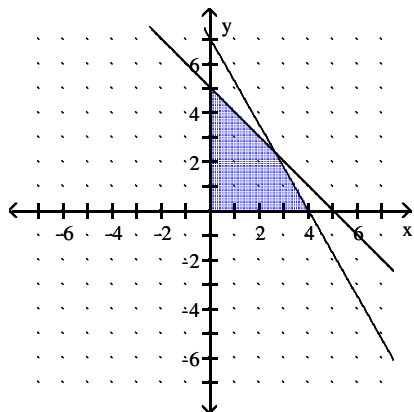
37) no solution; ∅

38) no solution; ∅

39)

40)

41)