Math 084 Spring 2014 Exam 3 (Final) Preperation Ch 4 et al v01
Dressler

Name_____

Determine whether the ordered pair is a solution of the system.

1) (–3, 6)

$$\begin{cases} x + y = 3 \\ x - y = -9 \end{cases}$$

2) (6, 1)

$$\begin{cases} x + y = 7 \\ x - y = 5 \end{cases}$$

3) (4, 1)

$$\begin{cases} 2x + y = 9 \\ 4x + 2y = 18 \end{cases}$$

4) (–2, –3)

$$\begin{cases} 3x + y = -9 \\ 4x + 3y = -17 \end{cases}$$

5) (–5, –6)

$$\begin{cases} x + y = -11 \\ x - y = 1 \end{cases}$$

6) (5, –6)

$$\begin{cases} x + y = -11 \\ x - y = 1 \end{cases}$$

7) (–6, –5)

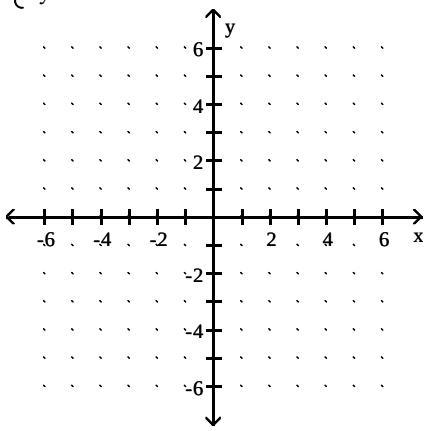
$$\begin{cases} x + y = 1 \\ x - y = 11 \end{cases}$$

8) (–3, –5)

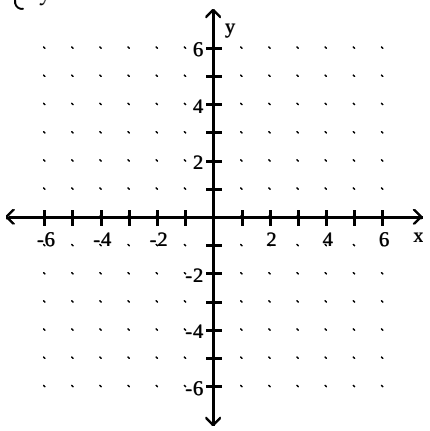
$$\begin{cases} x + y = -2 \\ x - y = 8 \end{cases}$$

Solve the system by graphing. If there is no solution or an infinite number of solutions, so state. Use set notation to express the solution set.

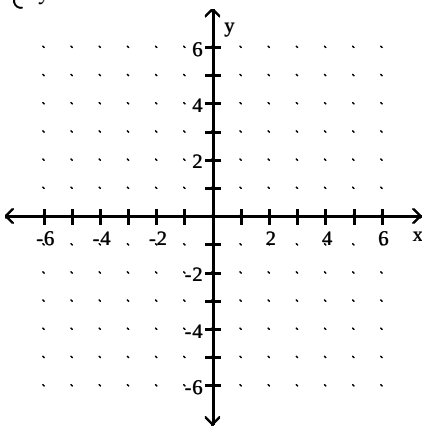
9) $\begin{cases} y - 6x = 3 \\ 6y = 36x + 18 \end{cases}$



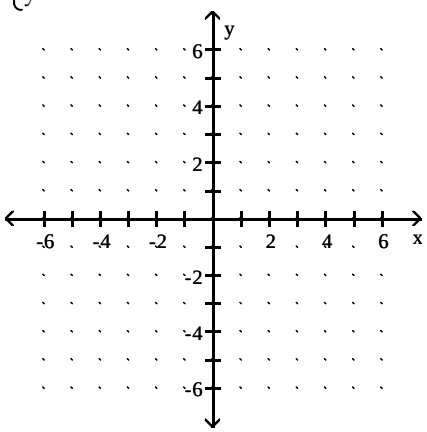
10) $\begin{cases} y - 4x = 3 \\ 3y = 12x + 9 \end{cases}$



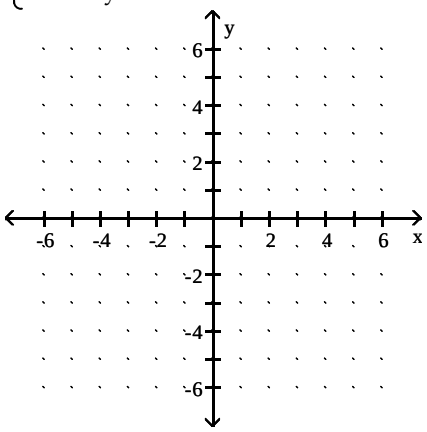
11) $\begin{cases} y - 5x = 4 \\ 2y = 10x + 8 \end{cases}$



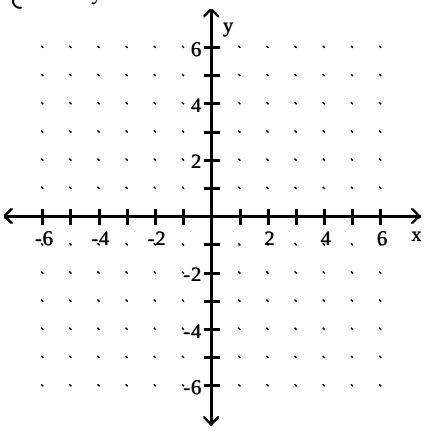
12) $\begin{cases} x = -y \\ y + x = 6 \end{cases}$



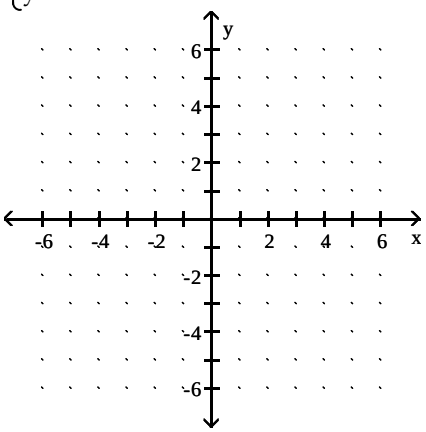
13) $\begin{cases} 4x + y = 10 \\ 16x + 4y = 40 \end{cases}$



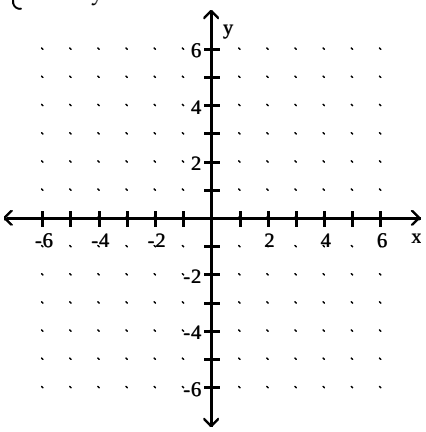
14) $\begin{cases} 2x + y = 6 \\ 8x + 4y = 24 \end{cases}$



15) $\begin{cases} x = -y \\ y + x = 6 \end{cases}$



16) $\begin{cases} 3x + y = 9 \\ 9x + 3y = 27 \end{cases}$



Solve the system by the substitution method. If there is no solution or an infinite number of solutions, so state. Use set notation to express the solution set.

17) $\begin{cases} x + y = -3 \\ y = -2x \end{cases}$

18) $\begin{cases} x + y = 9 \\ y = -4x \end{cases}$

19) $\begin{cases} 8x + 6y = -40 \\ -2x - 4y = 10 \end{cases}$

20) $\begin{cases} 7x + 9y = 49 \\ -4x - 2y = -28 \end{cases}$

21) $\begin{cases} x - 3 = y \\ y + 6 = x \end{cases}$

Solve the system by the addition method. If there is no solution or an infinite number of solutions, so state. Use set notation to express the solution set.

22) $\begin{cases} x + y = -5 \\ x - y = 9 \end{cases}$

23) $\begin{cases} x + y = -2 \\ x - y = -4 \end{cases}$

24) $\begin{cases} x - 7y = 27 \\ -5x - 7y = -9 \end{cases}$

25) $\begin{cases} x + 8y = 3 \\ -7x + 8y = 43 \end{cases}$

Solve the system by the best method. Use set notation to express the solution set.

26) $\begin{cases} 5x + 6y = 2 \\ 5x + 6y = 11 \end{cases}$

27) $\begin{cases} 2x + 4y = 8 \\ 2x + 4y = 6 \end{cases}$

28) $\begin{cases} 4x + 7y = 4 \\ 4x + 7y = 11 \end{cases}$

29) $\begin{cases} 2x + 3y = 2 \\ 2x + 3y = 5 \end{cases}$

30) $\begin{cases} 5x = -25 \\ x + 9y = 13 \end{cases}$

31) $\begin{cases} -5x = -35 \\ x - 2y = -1 \end{cases}$

32) $\begin{cases} 6x - 16 = 4y \\ -2x + 2y = -4 \end{cases}$

33) $\begin{cases} 9x - 45 = 9y \\ 6x + 7y = -48 \end{cases}$

34) $\begin{cases} 3x + 8y = 3 \\ 3x + 8y = 11 \end{cases}$

35) $\begin{cases} 5x + 8y = 7 \\ 5x + 8y = 13 \end{cases}$

Solve the problem.

36) Jamil always throws loose change into a pencil holder on his desk and takes it out every two weeks. This time it is all nickels and dimes. There are 8 times as many dimes as nickels, and the value of the dimes is $3.75 more than the value of the nickels. How many nickels and dimes does Jamil have?

37) Jamil always throws loose change into a pencil holder on his desk and takes it out every two weeks. This time it is all nickels and dimes. There are 4 times as many dimes as nickels, and the value of the dimes is $1.75 more than the value of the nickels. How many nickels and dimes does Jamil have?

38) Jamil always throws loose change into a pencil holder on his desk and takes it out every two weeks. This time it is all nickels and dimes. There are 4 times as many dimes as nickels, and the value of the dimes is $2.45 more than the value of the nickels. How many nickels and dimes does Jamil have?

39) 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 4 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.

40) Yvette has up to $5000 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.

41) Yvette has up to $1000 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.

Solve.

42) A bank loaned out $62,000, part of it at the rate of 11% per year and the rest at a rate of 7% per year. If the interest received was $5340, how much was loaned at 11%?

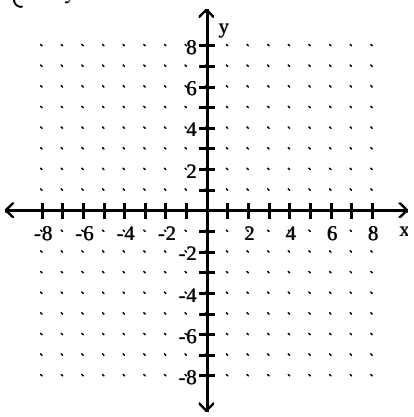
43) A bank loaned out $58,000, part of it at the rate of 9% per year and the rest at a rate of 4% per year. If the interest received was $4070, how much was loaned at 9%?

44) A bank loaned out $57,000, part of it at the rate of 11% per year and the rest at a rate of 5% per year. If the interest received was $4590, how much was loaned at 11%?

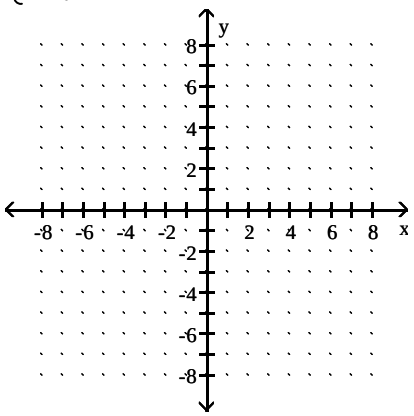
45) A bank loaned out $66,000, part of it at the rate of 9% per year and the rest at a rate of 4% per year. If the interest received was $4190, how much was loaned at 9%?

Graph the solution set of the system of linear inequalities. If the system has no solutions, state this.

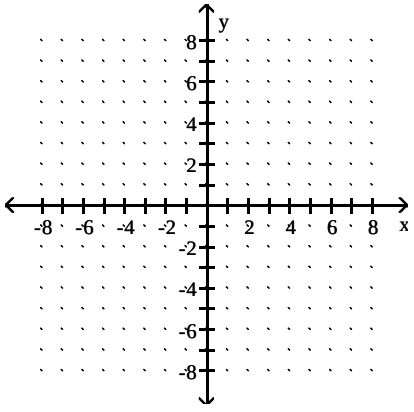
46) $\begin{cases} x + y > 2 \\ x - y \le -5 \end{cases}$



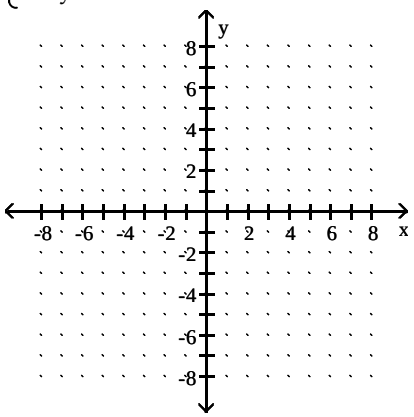
47) $\begin{cases} x + y > 4 \\ x - y \le -1 \end{cases}$



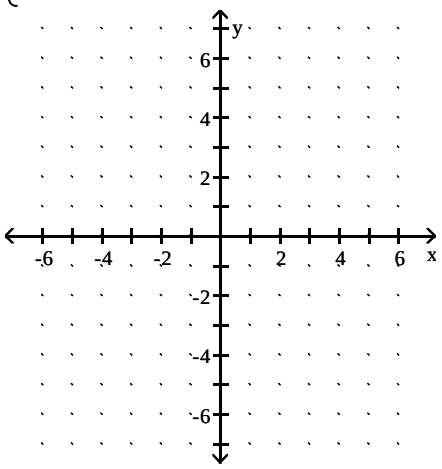
48) $\begin{cases} x + y > 3 \\ x - y \le -1 \end{cases}$



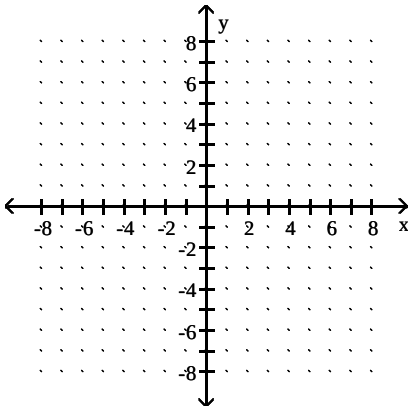
49) $\begin{cases} x + y > -1 \\ x - y \le 5 \end{cases}$



50) $\begin{cases} 2x + y \ge 4 \\ x > 1 \end{cases}$



51) $\begin{cases} x + y > -2 \\ x - y \le -5 \end{cases}$



Use the order of operations to simplify the expression.

52) $22 - [\,8 - (\,2 - 11)] + (\,1 - 3\,)^3$

53) $23 - [\,6 - (\,4 - 10)] + (\,4 - 6\,)^3$

54) $24 - [\,9 - (\,5 - 11)] + (\,1 - 3\,)^3$

Solve the equation.

55) $\frac{1}{4}x - \frac{3}{8}x = 5$

56) $\frac{1}{4}x - \frac{3}{8}x = 4$

57) $\frac{1}{4}x - \frac{3}{8}x = 2$

58) $\frac{3}{4} - \frac{x}{5} = \frac{17}{20}$

59) $\frac{4}{5} - \frac{x}{4} = \frac{19}{20}$

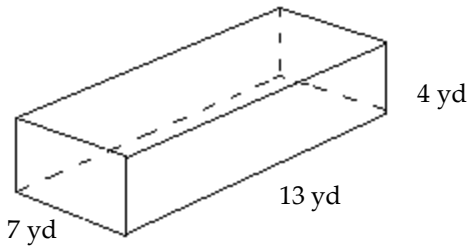
60) $\frac{3}{2} + \frac{x}{4} = \frac{11}{8}$

61) $\frac{1}{4}x - \frac{3}{8}x = 3$

62) $\frac{1}{3} - \frac{x}{2} = \frac{19}{6}$

Find the volume of the figure. Where applicable, express answers in terms of π.

63)



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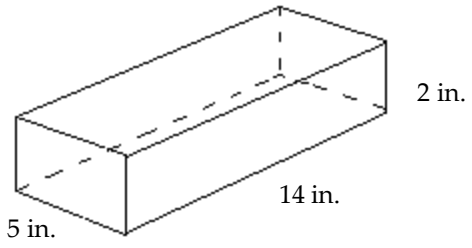
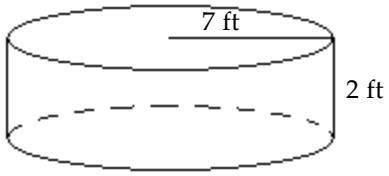
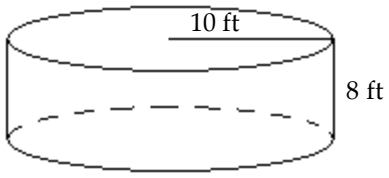


65)



66)



Find the slope of the line passing through the pair of points or state that the slope is undefined.

67) (7, 1) and (4, –4)

68) (6, 2) and (–3, –4)

69) (–1, –7) and (6, –3)

70) (–2, –19) and (–5, –18)

71) (16, –12) and (11, 8)

72) (–1, 15) and (–9, 6)

Find the point–slope form of the equation of the line satisfying the given conditions and use this to write the slope–intercept form of the equation.

73) Slope = 4, passing through (3, 4)

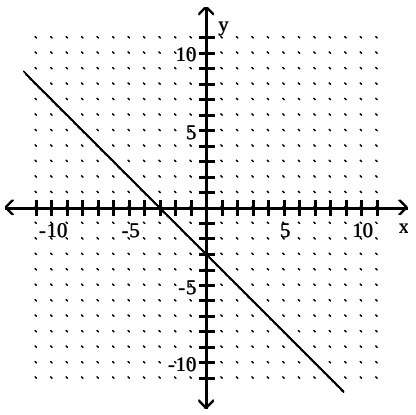
74) Slope = 3, passing through (5, 2)

75) Slope = –3, passing through (3, 3)

76) Slope = –4, passing through (3, 5)

Find the slope of the line, or state that the slope is undefined.

77)



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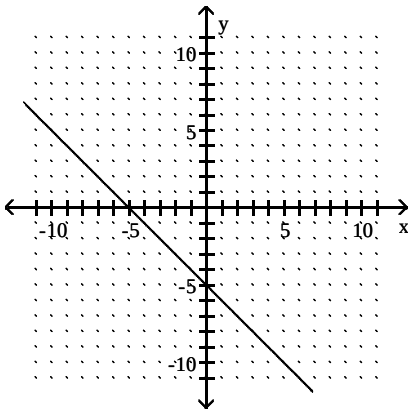

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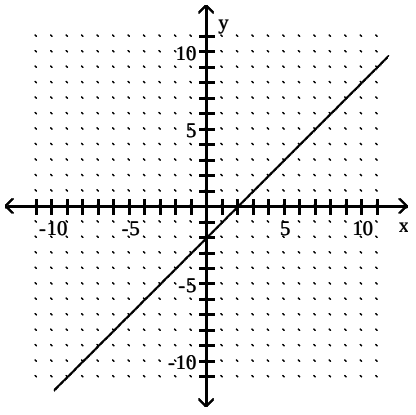
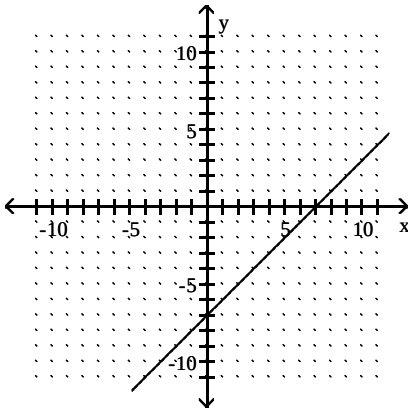


80)



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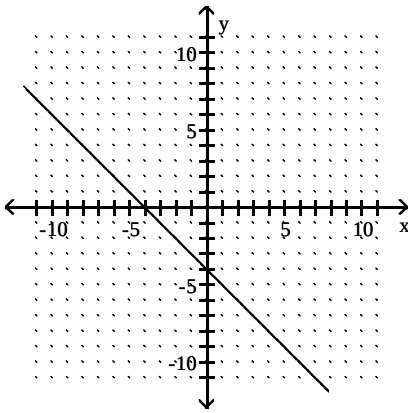
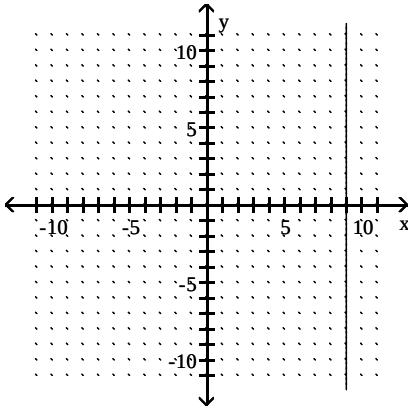


82)



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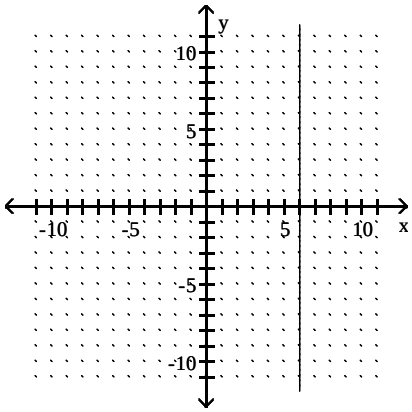

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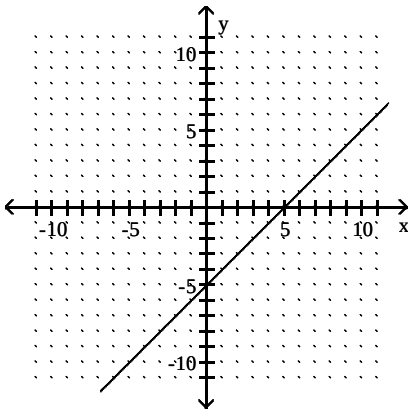

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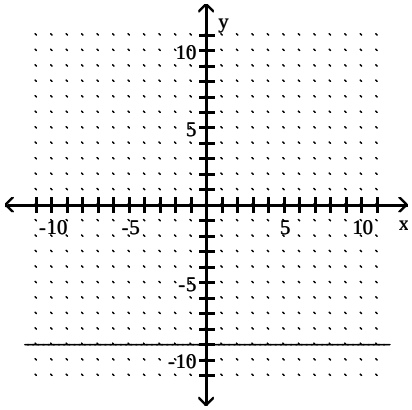
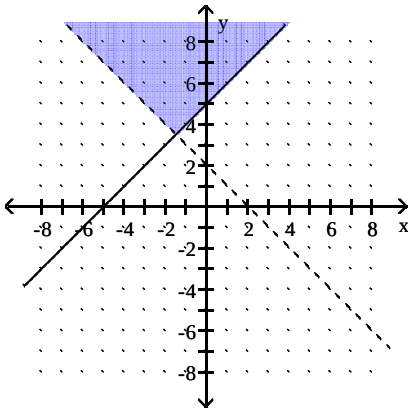


1) Yes
2) Yes
3) Yes
4) Yes
5) Yes
6) No
7) No
8) No
9) infinitely many solutions; $\{(x, y) \mid y - 6x = 3\}$ or $\{(x, y) \mid 6y = 36x + 18\}$
10) infinitely many solutions; $\{(x, y) \mid y - 4x = 3\}$ or $\{(x, y) \mid 3y = 12x + 9\}$
11) infinitely many solutions; $\{(x, y) \mid y - 5x = 4\}$ or $\{(x, y) \mid 2y = 10x + 8\}$
12) no solution; $\emptyset$
13) infinitely many solutions; $\{(x, y) \mid 4x + y = 10\}$ or $\{(x, y) \mid 16x + 4y = 40\}$
14) infinitely many solutions; $\{(x, y) \mid 2x + y = 6\}$ or $\{(x, y) \mid 8x + 4y = 24\}$
15) no solution; $\emptyset$
16) infinitely many solutions; $\{(x, y) \mid 3x + y = 9\}$ or $\{(x, y) \mid 9x + 3y = 27\}$
17) $\{(3, -6)\}$
18) $\{(-3, 12)\}$
19) $\{(-5, 0)\}$
20) $\{(7, 0)\}$
21) no solution; $\emptyset$
22) $\{(2, -7)\}$
23) $\{(-3, 1)\}$
24) $\{(6, -3)\}$
25) $\{(-5, 1)\}$
26) no solution; $\emptyset$
27) no solution; $\emptyset$
28) no solution; $\emptyset$
29) no solution; $\emptyset$
30) $\{(-5, 2)\}$
31) $\{(7, 4)\}$
32) $\{(4, 2)\}$
33) $\{(-1, -6)\}$
34) no solution; $\emptyset$
35) no solution; $\emptyset$
36) 5 nickels and 40 dimes
37) 5 nickels and 20 dimes
38) 7 nickels and 28 dimes
39) $x + y \le 7000$
$x \le 4y$
$x \ge 0$
$y \ge 0$
40) $x + y \le 5000$
$x \le 3y$
$x \ge 0$
$y \ge 0$
41) $x + y \le 1000$
$x \le 5y$
$x \ge 0$
$y \ge 0$

42) $25,000
43) $35,000
44) $29,000
45) $31,000
46)



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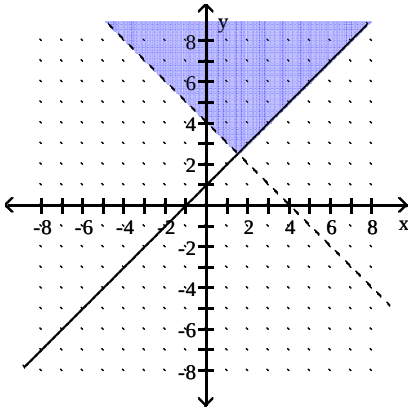

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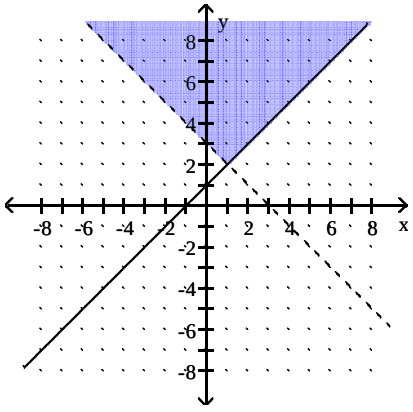

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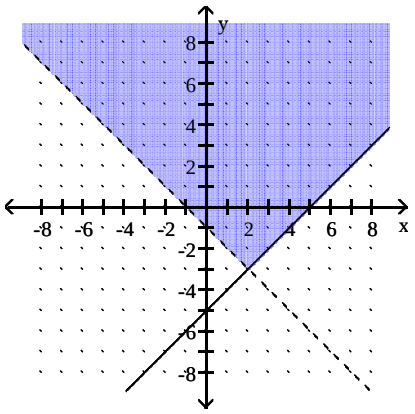

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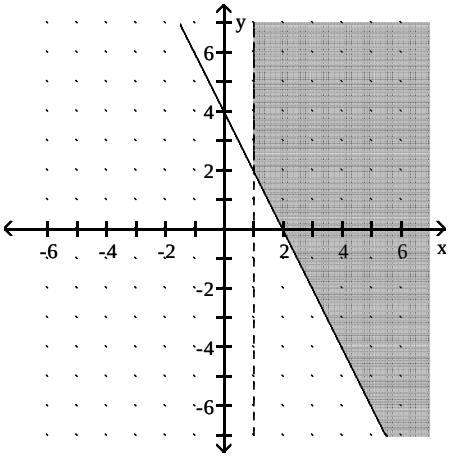

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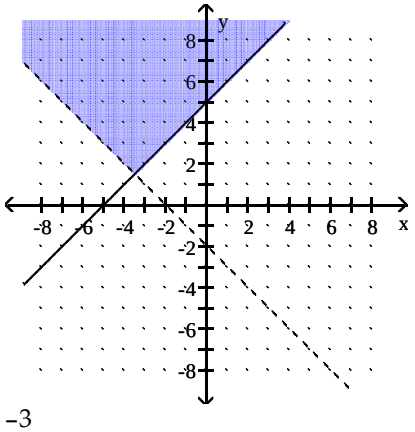

52) –3
53) 3
54) 1
55) {–40}
56) {–32}
57) {–16}
58) $\left\{-\frac{1}{2}\right\}$

59) $\left\{-\frac{3}{5}\right\}$
60) $\left\{-\frac{1}{2}\right\}$
61) {–24}
62) $\left\{-\frac{17}{3}\right\}$
63) 364 yd^3
64) 140 $in.^3$
65) 98π ft^3
66) 800π ft^3
67) $\frac{5}{3}$
68) $\frac{2}{3}$
69) $\frac{4}{7}$
70) $-\frac{1}{3}$
71) – 4
72) $\frac{9}{8}$
73) y = 4x – 8
74) y = 3x – 13
75) y = – 3x + 12
76) y = – 4x + 17
77) –1
78) –1
79) 1
80) 1
81) –1
82) Undefined
83) Undefined
84) 1
85) 0