Chapter Five Exam Practice
Winter 2010 V01

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

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

1) (6, 3)
$3x + y = 21$
$4x + 3y = 33$

Decide whether or not the ordered pair is a solution of the system.

2) (−6, −5)
$x + y = -11$
$x - y = -1$

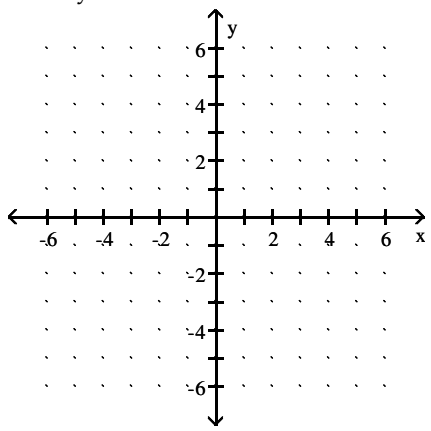
3) (−4, 2)
$4x = -14 - y$
$2x = 0 - 4y$

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

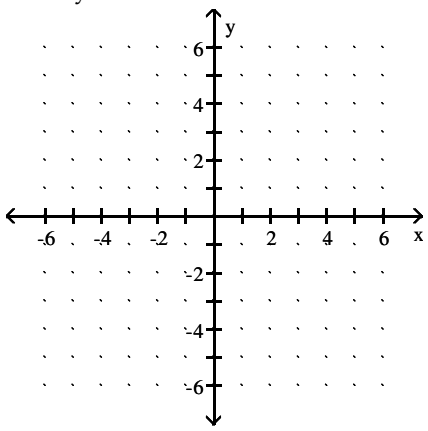
4) (−5, 6)
$4x + y = -26$
$2x + 4y = -34$

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

5) $3x + y = -9$
$4x + 2y = -10$

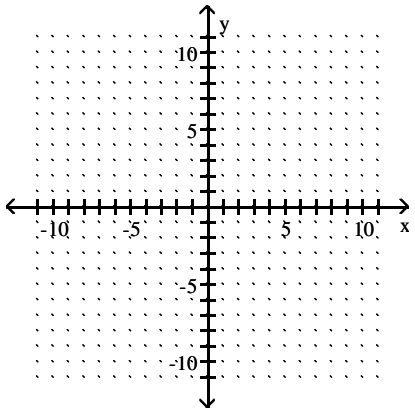


6) $-2x + 3y = 0$
$2x + 4y = 14$



Solve the system by graphing.

7) $y = x + 2$
$y = -2x + 8$



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

8) $x - 4y = -31$
$-4x - 5y = -44$

9) $y = 2x - 4$
$4x + y = 26$

10) $y = 2x + 3$
$3x + y = 23$

11) $x - 6y = 29$
$-6x - 7y = -2$

12) $x + 2y = -2$
$6x + 3y = -3$

13) $x + 6y = 1$
$-7x + 7y = -7$

14) $x + y = -4$
$x - y = 11$

15) $y = 4x + 4$
$y = 7x + 5$

16) $x - 2 = y$
$y + 6 = x$

17) $y = 1.5x + 3.1$
$y = 0.7x - 1.3$

Solve the problem.

18) One number is 2 less than a second number. Twice the second number is 3 less than 3 times the first. Find the two numbers.

19) One number is 4 less than a second number. Twice the second number is 3 less than 3 times the first. Find the two numbers.

20) One number is 2 less than a second number. Twice the second number is 18 more than 3 times the first. Find the two numbers.

21) One number is 7 less than a second number. Twice the second number is 28 more than 3 times the first. Find the two numbers.

22) The sum of two numbers is –3. Three times the first number equals 2 times the second number. Find the two numbers.

23) The sum of two numbers is –4. Two times the first number equals 4 times the second number. Find the two numbers.

24) The sum of two numbers is –7. Two times the first number equals 4 times the second number. Find the two numbers.

25) A vendor sells hot dogs and bags of potato chips. A customer buys 4 hot dogs and 3 bags of potato chips for $11.75. Another customer buys 2 hot dogs and 3 bags of potato chips for $7.75. Find the cost of each item.

26) A vendor sells hot dogs and bags of potato chips. A customer buys 5 hot dogs and 3 bags of potato chips for $13.50. Another customer buys 2 hot dogs and 3 bags of potato chips for $6.75. Find the cost of each item.

27) A vendor sells hot dogs and bags of potato chips. A customer buys 3 hot dogs and 2 bags of potato chips for $10.25. Another customer buys 4 hot dogs and 2 bags of potato chips for $12.50. Find the cost of each item.

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

28) $4x - y = 10$
$2x + y = 8$

29) $7x - 4y = -1$
$-3x + 2y = 3$

30) $-2x - 6y = 3$
$-12x - 36y = 18$

Solve the problem.

31) Devon purchased tickets to an air show for 5 adults and 2 children. The total cost was $112. The cost of a child's ticket was $7 less than the cost of an adult's ticket. Find the price of an adult's ticket and a child's ticket.

32) 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 5 times as many dimes as nickels, and the value of the dimes is $5.40 more than the value of the nickels. How many nickels and dimes does Jamil have?

33) On a buying trip in Los Angeles, Rosaria Perez ordered 120 pieces of jewelry: a number of bracelets at $11 each and a number of necklaces at $13 each. She wrote a check for $1480 to pay for the order. How many bracelets and how many necklaces did Rosaria purchase?

34) Julie and Eric row their boat (at a constant speed) 48 miles downstream for 6 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 8 hours. Find the rate of the current.

35) Julie and Eric row their boat (at a constant speed) 45 miles downstream for 5 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 9 hours. Find the rate of the current.

36) A barge takes 6 hours to move (at a constant rate) downstream for 60 miles, helped by a current of 2 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current.

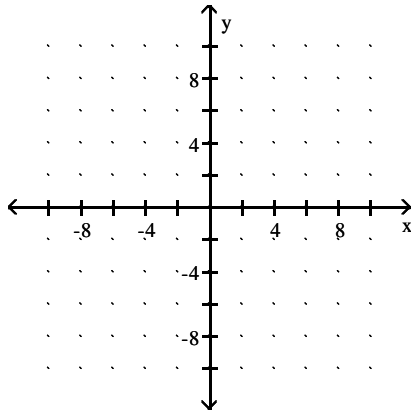
37) A barge takes 4 hours to move (at a constant rate) downstream for 40 miles, helped by a current of 3 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current.

38) Khang and Hector live 22.8 miles apart in southeastern Missouri. They decide to bicycle towards each other and meet somewhere in between. Hector's rate of speed is 90% of Khang's. They start out at the same time and meet 2 hours later. Find Hector's rate of speed.

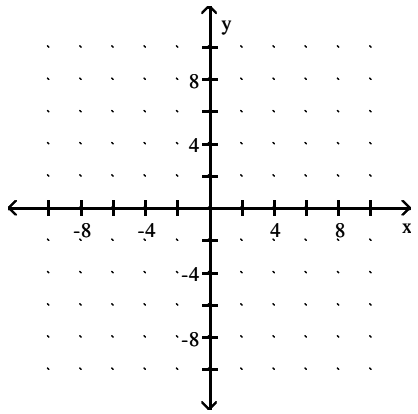
39) Khang and Hector live 83.6 miles apart in southeastern Missouri. They decide to bicycle towards each other and meet somewhere in between. Hector's rate of speed is 90% of Khang's. They start out at the same time and meet 4 hours later. Find Hector's rate of speed.

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

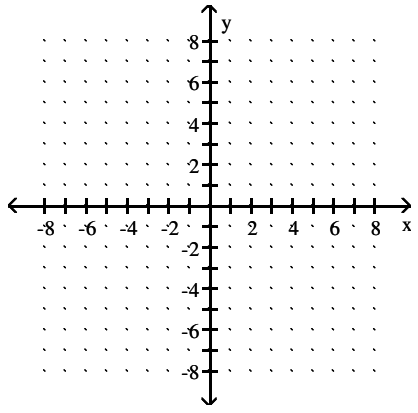
40) $5x + 3y > 9$
$x - 3y < 6$



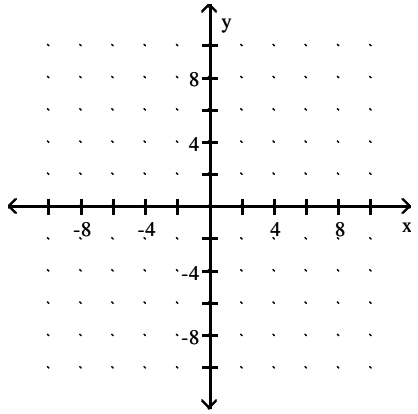
41) $y \geq 4x - 4$
$y \leq 3 - x$



42) $x + y > -5$
$x - y \leq -4$



43) $y \geq 3x - 3$
$y \leq -4 - x$



Solve the problem.

44) Yvette has up to $6000 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.

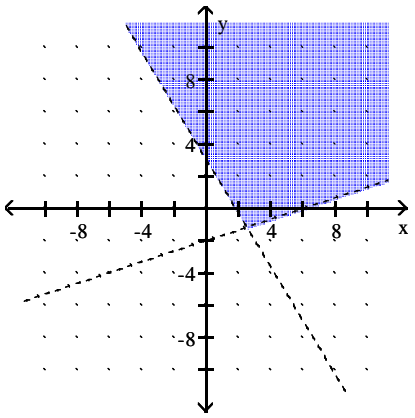
45) Yvette has up to $6000 to invest and has chosen to put her money into telecommunications and pharmaceuticals. The telecommunications investment is to be no more than 4 times the pharmaceuticals investment. Write a system of inequalities to describe the situation. Let x = amount to be invested in telecommunications and y = amount to be invested in pharmaceuticals.

46) Marcus is planting a section of garden with tomatoes and cucumbers. The available area of the section is 120 square feet. He wants the area planted with tomatoes to be more than 20% 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.

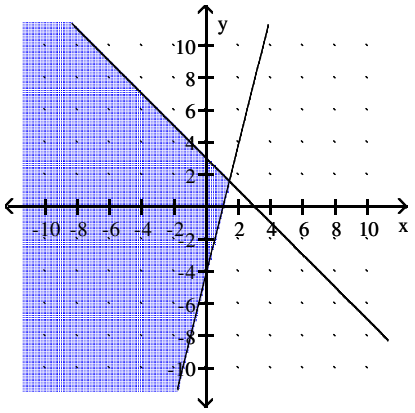
47) Benjamin never has more than 24 hours free during the week. He is trying to make a weekly plan for dividing his free time between reading and working out. He wants to spend at least 7 hours per week reading. Write a system of inequalities to describe the situation. Let x = amount of time for reading and y = amount of time for working out.

1) solution
2) Yes
3) Yes
4) not a solution
5) {(−4, 3)}
6) {(3, 2)}
7) {(2, 4)}
8) {(1, 8)}
9) {(5, 6)}
10) {(4, 11)}
11) {(5, −4)}
12) {(0, −1)}
13) {(1, 0)}
14) $\left\{\left(\frac{7}{2}, -\frac{15}{2}\right)\right\}$
15) $\left\{\left(-\frac{1}{3}, \frac{8}{3}\right)\right\}$
16) no solution; ∅
17) {(−5.5, −5.15)}
18) 7 and 9
19) 11 and 15
20) −14 and −12
21) −14 and −7
22) $-\frac{6}{5}$ and $-\frac{9}{5}$
23) $-\frac{8}{3}$ and $-\frac{4}{3}$
24) $-\frac{14}{3}$ and $-\frac{7}{3}$
25) $2.00 for a hot dog; $1.25 for a bag of potato chips
26) $2.25 for a hot dog; $0.75 for a bag of potato chips
27) $2.25 for a hot dog; $1.75 for a bag of potato chips
28) {(3, 2)}
29) {(5, 9)}
30) infinite number of solutions; {(x, y)| −2x − 6y = 3} or {(x, y)| −12x − 36y = 18}
31) adult's ticket: $18; child's ticket: $11
32) 12 nickels and 60 dimes
33) 40 bracelets and 80 necklaces
34) 1 mph
35) 2 mph
36) 10 hours
37) 10 hours
38) 5.4 mph
39) 9.9 mph

40)


y
x
8
4
-8
-4
4
8
-4
-8

41)


y
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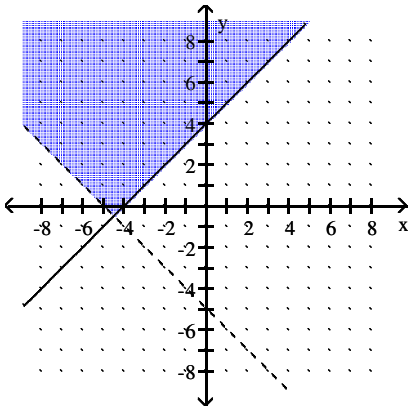
42)


y
x
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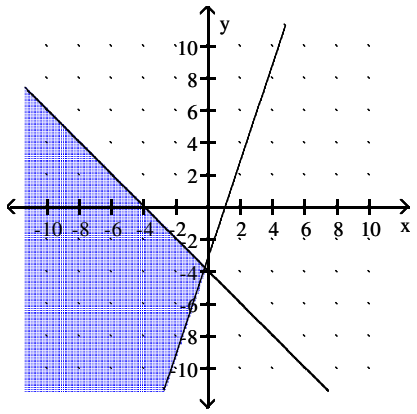
43)



44) $x + y \le 6000$
$x \le 5y$
$x \ge 0$
$y \ge 0$

45) $x + y \le 6000$
$x \le 4y$
$x \ge 0$
$y \ge 0$

46) $x + y \le 120$
$x > 0.20y$
$x \ge 0$
$y \ge 0$

47) $x + y \le 24$
$x \ge 7$
$y \ge 0$