Math 084 W2010 Worksheet 5.2 v01
Systems of Linear Equations Exercises
Dressler

Name_____

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

1) $x + y = 6$
   $y = -3x$

2) $y = 3x + 5$
   $2x + y = 20$

3) $x + 4y = -23$
   $-3x + 3y = -6$

4) $x - 5y = -5$
   $9x - 4y = -4$

5) $x + 5y = -3$
   $-2x + 6y = 6$

6) $-7x - 5y = -16$
   $5x - 3y = 18$

7) $7x + 7y = -14$
   $-4x - 3y = 6$

8) $-4x - 6y = -28$
   $-2x - 4y = -14$

9) $\frac{1}{4}x + \frac{1}{4}y = 0$
   $x - y = -4$

10) $x + y = -7$
    $x - y = 16$

11) $y = 4x - 9$
    $y = 9x - 10$

12) $y = 1.1x + 3.3$
    $y = 0.3x + 1.78$

13) $x - 3 = y$
    $y + 7 = x$

14) $3x + y = 11$
    $9x + 3y = 33$

15) $-4x - 8y = 9$
$3x + 6y = 0$

16) $y - 6x = 3$
$6y = 36x + 18$

17) $x = -y$
$x + y = 6$

18) $x + y = 10$
$y = 4x$

19) $x - 6y = -31$
$9x - 7y = 3$

Solve the problem.

20) One number is 7 less than a second number. Twice the second number is 2 less than 4 times the first. Find the two numbers.

21) One number is 2 less than a second number. Twice the second number is 4 less than 3 times the first. Find the two numbers.

22) One number is 5 less than a second number. Twice the second number is 2 less than 4 times the first. Find the two numbers.

23) One number is 3 less than a second number. Twice the second number is 51 more than 5 times the first. Find the two numbers.

24) One number is 6 less than a second number. Twice the second number is 25 more than 3 times the first. Find the two numbers.

25) A vendor sells hot dogs and bags of potato chips. A customer buys 4 hot dogs and 2 bags of potato chips for $6.50. Another customer buys 3 hot dogs and 5 bags of potato chips for $7.50. 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 $12.50. Another customer buys 2 hot dogs and 3 bags of potato chips for $7.25. Find the cost of each item.

27) A tour group split into two groups when waiting in line for food at a fast food counter. The first group bought 8 slices of pizza and 7 soft drinks for $33.08. The second group bought 7 slices of pizza and 5 soft drinks for $27.01. How much does one slice of pizza cost?

28) A tour group split into two groups when waiting in line for food at a fast food counter. The first group bought 7 slices of pizza and 4 soft drinks for $31.18. The second group bought 5 slices of pizza and 5 soft drinks for $25.55. How much does one slice of pizza cost?

1) {(–3, 9)}
2) {(3, 14)}
3) {(–3, –5)}
4) {(0, 1)}
5) {(–3, 0)}
6) {(3, –1)}
7) {(0, –2)}
8) {(7, 0)}
9) {(–2, 2)}
10) $\left\{ \left(\dfrac{9}{2}, -\dfrac{23}{2} \right) \right\}$
11) $\left\{ \left(\dfrac{1}{5}, -\dfrac{41}{5} \right) \right\}$
12) {(–1.9, 1.21)}
13) no solution; $\varnothing$
14) infinite number of solutions; {(x, y)| 3x + y = 11} or {(x, y)| 9x + 3y = 33}
15) no solution; $\varnothing$
16) infinite number of solutions; {(x, y)| y – 6x = 3} or {(x, y)| 6y = 36x + 18}
17) no solution; $\varnothing$
18) {(2, 8)}
19) {(5, 6)}
20) 8 and 15
21) 8 and 10
22) 6 and 11
23) –15 and –12
24) –13 and –7
25) $1.25 for a hot dog; $0.75 for a bag of potato chips
26) $1.75 for a hot dog; $1.25 for a bag of potato chips
27) $2.63 per slice of pizza
28) $3.58 per slice of pizza