Algebra 1 Name_____

Systems of Equations - Substitution

Date_____

Solve each system by substitution.

1) $-x - 4y = 3$
$x + 4y = 8$

2) $-4x + 2y = 8$
$-x - 2y = 12$

3) $3x - 8y = 12$
$-3x - 5y = -12$

4) $-4x + 7y = 24$
$7x - 4y = 24$

5) $3x - 4y = 15$
$-6x - 8y = 18$

6) $5x - y = 6$
$-2x + 3y = 8$

7) $-2x - 5y = 18$
$-6x - 4y = -12$

8) $2x + 5y = -6$
$y = -4$

9) $8x + 8y = -16$
$-8x + 5y = -10$

10) $3x - 2y = -10$
$5x - 3y = -17$

11) The sum of the digits of a certain two-digit number is 11. Reversing its digits decreases the number by 9. Find the number.

12) Jenny and Pranav each improved their yards by planting hostas and shrubs. They bought their supplies from the same store. Jenny spent $44 on 4 hostas and 12 shrubs. Pranav spent $69 on 13 hostas and 2 shrubs. Find the cost of one hosta and the cost of one shrub.

13) A boat traveled 220 miles downstream and back. The trip downstream took 11 hours. The trip back took 22 hours. Find the speed of the boat in still water and the speed of the current.

14) The sum of the digits of a certain two-digit number is 5. Reversing its digits increases the number by 9. What is the number?

15) Amy and Jenny each improved their yards by planting hostas and geraniums. They bought their supplies from the same store. Amy spent $62 on 2 hostas and 14 geraniums. Jenny spent $37 on 3 hostas and 7 geraniums. Find the cost of one hosta and the cost of one geranium.

16) The county fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 11 vans and 4 buses with 195 students. High School B rented and filled 1 van and 2 buses with 57 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

17) The school that Beth goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 4 adult tickets and 9 student tickets for a total of $79. The school took in $97 on the second day by selling 12 adult tickets and 7 student tickets. What is the price each of one adult ticket and one student ticket?

18) A boat traveled 196 miles downstream and back. The trip downstream took 7 hours. The trip back took 14 hours. What is the speed of the boat in still water? What is the speed of the current?

19) The school that Shreya goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 10 adult tickets and 14 child tickets for a total of $196. The school took in $210 on the second day by selling 13 adult tickets and 7 child tickets. Find the price of an adult ticket and the price of a child ticket.

20) A plane traveled 1568 miles to Ankara and back. The trip there was with the wind. It took 14 hours. The trip back was into the wind. The trip back took 28 hours. What is the speed of the plane in still air? What is the speed of the wind?

Algebra 1 Name_____

Systems of Equations - Substitution

Date_____

Solve each system by substitution.

1) $-x - 4y = 3$
$x + 4y = 8$

No solution

2) $-4x + 2y = 8$
$-x - 2y = 12$

$(-4, -4)$

3) $3x - 8y = 12$
$-3x - 5y = -12$

$(4, 0)$

4) $-4x + 7y = 24$
$7x - 4y = 24$

$(8, 8)$

5) $3x - 4y = 15$
$-6x - 8y = 18$

$(1, -3)$

6) $5x - y = 6$
$-2x + 3y = 8$

$(2, 4)$

7) $-2x - 5y = 18$
$-6x - 4y = -12$

$(6, -6)$

8) $2x + 5y = -6$
$y = -4$

$(7, -4)$

9) $8x + 8y = -16$
$-8x + 5y = -10$

$(0, -2)$

10) $3x - 2y = -10$
$5x - 3y = -17$

$(-4, -1)$

11) The sum of the digits of a certain two-digit number is 11. Reversing its digits decreases the number by 9. Find the number.

65

12) Jenny and Pranav each improved their yards by planting hostas and shrubs. They bought their supplies from the same store. Jenny spent $44 on 4 hostas and 12 shrubs. Pranav spent $69 on 13 hostas and 2 shrubs. Find the cost of one hosta and the cost of one shrub.

hosta: $5, shrub: $2

13) A boat traveled 220 miles downstream and back. The trip downstream took 11 hours. The trip back took 22 hours. Find the speed of the boat in still water and the speed of the current.

boat: 15 mph, current: 5 mph

14) The sum of the digits of a certain two-digit number is 5. Reversing its digits increases the number by 9. What is the number?

23

15) Amy and Jenny each improved their yards by planting hostas and geraniums. They bought their supplies from the same store. Amy spent $62 on 2 hostas and 14 geraniums. Jenny spent $37 on 3 hostas and 7 geraniums. Find the cost of one hosta and the cost of one geranium.

hosta: $3, geranium: $4

16) The county fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 11 vans and 4 buses with 195 students. High School B rented and filled 1 van and 2 buses with 57 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

Van: 9, Bus: 24

17) The school that Beth goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 4 adult tickets and 9 student tickets for a total of $79. The school took in $97 on the second day by selling 12 adult tickets and 7 student tickets. What is the price each of one adult ticket and one student ticket?

adult ticket: $4, student ticket: $7

18) A boat traveled 196 miles downstream and back. The trip downstream took 7 hours. The trip back took 14 hours. What is the speed of the boat in still water? What is the speed of the current?

boat: 21 mph, current: 7 mph

19) The school that Shreya goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 10 adult tickets and 14 child tickets for a total of $196. The school took in $210 on the second day by selling 13 adult tickets and 7 child tickets. Find the price of an adult ticket and the price of a child ticket.

adult ticket: $14, child ticket: $4

20) A plane traveled 1568 miles to Ankara and back. The trip there was with the wind. It took 14 hours. The trip back was into the wind. The trip back took 28 hours. What is the speed of the plane in still air? What is the speed of the wind?

plane: 84 mph, wind: 28 mph