SM3 Name_____

# Section 3.1B

Date_____ Period____

**Solve each system by substitution.**

1) $y = 1$
$-3x + 2y = 8$

2) $3x + y = -24$
$5x - 6y = 6$

3) $2x - 3y = 12$
$x - \frac{3}{2}y = -4$

4) $7x + y = -16$
$-4x + 2y = 4$

5) $-x + 7y = -16$
$-4x + y = -10$

6) $3x + 6y = 24$
$x + 2y = 8$

7) $3x + y = -1$
$y = 2x^2$

8) $y = x^2$
$y = x + 12$

9) $y = 2x^2 - 3x - 4$
$y = x^2 - 3x$

10) $y = x^2 - x$
$2x + y = 6$

**Solve each system by elimination.**

11) $2x - 3y = 12$
$-x + \frac{3}{2}y = 4$

12) $x - 11y = 17$
$3x + y = -17$

13) $-18x + 7y = -18$
$-9x + 4y = -9$

14) $5x - 6y = -29$
$7x + 8y = 25$

15) $-8x + 4y = 4$
$-2x + y = 1$

16) $5x - 7y = 10$
$3x - 2y = 17$

17) $x^2 + y^2 = 25$
$x^2 - y = 5$

18) $y = 2x^2 + x$
$2x + y = 20$

19) $x^2 - 2y = -6$
$y - \frac{1}{2}x = 6$

20) $2x^2 - 3y = -4$
$x^2 - y = 0$

21) The sum of two numbers is twice their difference. The larger number is 6 more than twice the smaller. Find the numbers.

22) Find the value of two numbers if their sum is 9 and their difference is 1.

23) The perimeter of a rectangle is 32 inches. The area of the rectangle is $55in^2$. Find the dimensions of the rectange.

24) The perimeter of a rectangle is 12 meters. The length is 3 more than twice its width. Find the dimensions of the rectangle.

25) Totsakan and Jacob are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Totsakan sold 5 small boxes of oranges and 6 large boxes of oranges for a total of \$164. Jacob sold 8 small boxes of oranges and 12 large boxes of oranges for a total of \$308. What is the cost each of one small box of oranges and one large box of oranges?

26) Kathryn and Eduardo are selling cheesecakes for a school fundraiser. Customers can buy pecan cheesecakes and chocolate marble cheesecakes. Kathryn sold 10 pecan cheesecakes and 8 chocolate marble cheesecakes for a total of $120. Eduardo sold 5 pecan cheesecakes and 1 chocolate marble cheesecake for a total of $30. What is the cost each of one pecan cheesecake and one chocolate marble cheesecake?

27) New York City 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 12 vans and 3 buses with 141 students. High School B rented and filled 6 vans and 8 buses with 220 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?

28) The school that Joe goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 8 senior citizen tickets and 9 child tickets for a total of $215. The school took in $100 on the second day by selling 4 senior citizen tickets and 4 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

29) A man has 14 coins in his pocket, all of which are dimes and quarters. If the total value of his change is $2.75, how many dimes and how many quarters does he have?

30) Ana took a test in English. The test has 25 questions for a total score of 150 points. Among the 25 questions, each multiple choice questions carries 3 points and the descriptive type questions carries 8 points. How many multiple choice questions and descriptive type questions are there in the test?

SM3

Name Key

## Section 3.1B

Date _____ Period ____

**Solve each system by substitution.**

1) $y = 1$
$-3x + 2y = 8$

$(-2, 1)$

2) $3x + y = -24$
$5x - 6y = 6$

$(-6, -6)$

3) $2x - 3y = 12$
$x - \frac{3}{2}y = -4$

no solution

4) $7x + y = -16$
$-4x + 2y = 4$

$(-2, -2)$

5) $-x + 7y = -16$
$-4x + y = -10$

$(2, -2)$

6) $3x + 6y = 24$
$x + 2y = 8$

infinite solutions

7) $3x + y = -1$
$y = 2x^2$

$(-1, 2)$
$(-\frac{1}{2}, \frac{1}{2})$

8) $y = x^2$
$y = x + 12$

$(4, 16)$, $(-3, 9)$

9) $y = 2x^2 - 3x - 4$
$y = x^2 - 3x$

$(2, -2)$
$(-2, 10)$

10) $y = x^2 - x$
$2x + y = 6$

$(2, 2)$
$(-3, 12)$

**Solve each system by elimination.**

11) $2x - 3y = 12$
$-x + \frac{3}{2}y = 4$

no solution

12) $x - 11y = 17$
$3x + y = -17$

$(-5, -2)$

13) $-18x + 7y = -18$
$-9x + 4y = -9$

$(1, 0)$

14) $5x - 6y = -29$
$7x + 8y = 25$

$(-1, 4)$

15) $-8x + 4y = 4$
$-2x + y = 1$

infinite solutions

16) $5x - 7y = 10$
$3x - 2y = 17$

$(9, 5)$

17) $x^2 + y^2 = 25$
$x^2 - y = 5$

$(0, -5)$
$(3, 4)$
$(-3, 4)$

18) $y = 2x^2 + x$
$2x + y = 20$

$(-4, 28)$
$(\frac{5}{2}, 15)$

19) $x^2 - 2y = -6$
$y - \frac{1}{2}x = 6$

$(3, \frac{15}{2})$
$(-2, 5)$

20) $2x^2 - 3y = -4$
$x^2 - y = 0$

$(2, 4)$
$(-2, 4)$

21) The sum of two numbers is twice their difference. The larger number is 6 more than twice the smaller. Find the numbers.

18 and 6

22) Find the value of two numbers if their sum is 9 and their difference is 1.

4 & 5

23) The perimeter of a rectangle is 32 inches. The area of the rectangle is $55in^2$. Find the dimensions of the rectange.

5in by 11in.

24) The perimeter of a rectangle is 12 meters. The length is 3 more than twice its width. Find the dimensions of the rectangle.

1in by 5in

25) Totsakan and Jacob are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Totsakan sold 5 small boxes of oranges and 6 large boxes of oranges for a total of \$164. Jacob sold 8 small boxes of oranges and 12 large boxes of oranges for a total of \$308. What is the cost each of one small box of oranges and one large box of oranges?

Small box \$10
Large box \$19

26) Kathryn and Eduardo are selling cheesecakes for a school fundraiser. Customers can buy pecan cheesecakes and chocolate marble cheesecakes. Kathryn sold 10 pecan cheesecakes and 8 chocolate marble cheesecakes for a total of $120. Eduardo sold 5 pecan cheesecakes and 1 chocolate marble cheesecake for a total of $30. What is the cost each of one pecan cheesecake and one chocolate marble cheesecake?

pecan $4
Chocolate marble $10

27) New York City 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 12 vans and 3 buses with 141 students. High School B rented and filled 6 vans and 8 buses with 220 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?

Vans (4)
Buses (23)

28) The school that Joe goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 8 senior citizen tickets and 9 child tickets for a total of $215. The school took in $100 on the second day by selling 4 senior citizen tickets and 4 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

Senior $10
Children $15

29) A man has 14 coins in his pocket, all of which are dimes and quarters. If the total value of his change is $2.75, how many dimes and how many quarters does he have?

5 dimes
9 quarters

30) Ana took a test in English. The test has 25 questions for a total score of 150 points. Among the 25 questions, each multiple choice questions carries 3 points and the descriptive type questions carries 8 points. How many multiple choice questions and descriptive type questions are there in the test?

10 multiple choice
15 descriptive.