

Practice B

For use with pages 230–236

Write the linear system as a matrix equation.

1. $2x - 4y = 7$
 $-3x + y = 12$

2. $x + 9y = 20$
 $2x - 4y = 15$

3. $x - 2y + 3z = 14$
 $2x + y - 2z = 16$
 $-3x - 5y + 9z = 36$

Use an inverse matrix to solve the linear system.

4. $2x - 5y = 12$
 $x - 3y = -3$

5. $2x + y = 5$
 $-x + 4y = 11$

6. $2x + 6y = 2$
 $x + 5y = 3$

7. $5x + 3y = 52$
 $3x + 2y = 32$

8. $3x - 7y = -16$
 $-2x + 4y = 8$

9. $2x - 3y = 13$
 $x - y = 4$

10. $2x + 3y = 2$
 $x + 4y = -12$

11. $2x + 7y = 10$
 $3x - 4y = 15$

12. $x + y = -1$
 $2x + 3y = 6$

Use an inverse matrix and a graphing calculator to solve the linear system.

13. $2x + 6y - 4z = -10$
 $-3x + 10y - 7z = -23$
 $-2x - 6y + 5z = 10$

14. $5x + 4y + z = 14$
 $5x + 2y = 3$
 $2x + 5y + 2z = 24$

15. $x + y - 2z = 7$
 $-2x + z = -5$
 $-9x - 2y + z = -25$

16. $x + y - z = 2$
 $x - 2y + z = 8$
 $-y + z = 3$

17. $x + 2y = 7$
 $-3x + 5y + z = 11$
 $5x - 2y - z = 0$

18. $2x + y - 3z = -4$
 $x + 2y + z = 2$
 $x + 3y + 4z = 10$

Stock Investment In Exercises 19–22, use the following information.

You have \$20,000 to invest in three types of stocks. You expect the annual returns on Stock X, Stock Y, and Stock Z to be 12%, 10%, and 6%, as respectively. You want the combined investment in Stock Y and Stock Z to be three times the amount invested in Stock X. You want your overall annual return to be 9%.

19. Write a linear system of equations that represents the given information.

20. Write the system as a matrix equation.

21. Use an inverse matrix and your graphing calculator to solve the system.

22. How much should you invest in each type of stock?

23. **Pewter Alloys** Pewter is an alloy that consists mainly of tin. It also contains small amounts of antimony and copper. Three pewter alloys contain percents of tin, antimony, and copper as show in the matrix below. You have 1296 pounds of tin, 69 pounds of antimony, and 35 pounds of copper. How much of each alloy can you make?

PERCENTS ALLOY BY WEIGHT

	X	Y	Z
Tin	0.90	0.94	0.92
Antimony	0.08	0.03	0.06
Copper	0.02	0.03	0.02