SYSTEMS OF TWO EQUATIONS Use an inverse matrix to solve the linear system.

25. $4x - y = 10$
$-7x - 2y = -25$

26. $4x + 7y = -16$
$2x + 3y = -4$

27. $3x - 2y = 5$
$6x - 5y = 14$

28. $x - y = 4$
$9x - 10y = 45$

29. $-2x - 9y = -2$
$4x + 16y = 8$

30. $2x - 7y = -6$
$-x + 5y = 3$

31. $6x + y = -2$
$-x + 3y = -25$

32. $2x + y = -2$
$2x + 5y = 38$

33. $5x + 7y = 20$
$3x + 5y = 16$

34. ◆ **TAKS REASONING** What is the solution of the system shown?

$3x - 5y = -26$
$-x + 2y = 10$

A (3, 7) **B** (7, −1) **C** (−2, 4) **D** (68, 110)

SYSTEMS OF THREE EQUATIONS Use an inverse matrix and a graphing calculator to solve the linear system.

35. $x - y - 3z = 2$
$5x + 2y + z = -17$
$-3x - y = 8$

36. $-3x + y - 8z = 18$
$x - 2y + z = -11$
$2x - 2y + 5z = -17$

37. $2x + 4y + 5z = 5$
$x + 2y + 3z = 4$
$5x - 4y - 2z = -3$

38. $4x - y - z = -20$
$6x - z = -27$
$-x + 4y + 5z = 23$

39. $3x + 2y - z = 14$
$-x - 5y + 4z = -48$
$4x + y + z = 2$

40. $6x + y + 2z = 11$
$x - y + z = -5$
$-x + 4y - z = 14$

41. ◆ **TAKS REASONING** Write a 2×2 matrix that has no inverse.

42. CHALLENGE Solve the linear system using the given inverse of the coefficient matrix.

$2w + 5x - 4y + 6z = 0$
$2x + y - 7z = 52$
$4w + 8x - 7y + 14z = -25$
$3w + 6x - 5y + 10z = -16$

$$A^{-1} = \begin{bmatrix} -10 & 4 & 27 & -29 \\ 5 & -2 & -16 & 18 \\ 4 & -2 & -17 & 20 \\ 2 & -1 & -7 & 8 \end{bmatrix}$$

PROBLEM SOLVING

43. AVIATION A pilot has 200 hours of flight time in single-engine airplanes and twin-engine airplanes. Renting a single-engine airplane costs $60 per hour, and renting a twin-engine airplane costs $240 per hour. The pilot has spent $21,000 on airplane rentals. Use an inverse matrix to find how many hours the pilot has flown each type of airplane.

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44. BASKETBALL During the 2003–2004 NBA season, Dirk Nowitzki of the Dallas Mavericks made a total of 976 shots and scored 1680 points. His shots consisted of 3-point field goals, 2-point field goals, and 1-point free throws. He made 135 more 2-point field goals than free throws. Use an inverse matrix to find how many of each type of shot he made.

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