

# Practice 42

FOR USE WITH SECTION 7.3

Rewrite the following systems in matrix form, and solve for  $x$  and  $y$ .

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|--------------------------------------|--------------------------------------|--------------------------------------|
| 1. $3x - 5y = 17$<br>$7x - 11y = 21$ | 2. $2x + 9y = 12$<br>$3x + 13y = 29$ | 3. $5x + 9y = 11$<br>$-2x + 3y = 88$ |
| 4. $7x - 8y = 43$<br>$6x - 7y = 32$  | 5. $3x + 5y = 24$<br>$2x - 9y = 53$  | 6. $4x + 5y = 45$<br>$6x + 7y = 39$  |

Use matrices to solve each system for  $x$  and  $y$ . Round the values to the nearest hundredth.

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|-----------------------------------|-------------------------------------|---------------------------------|
| 7. $y = 15x + 9$<br>$y = 37x - 4$ | 8. $y = 6.2x - 17.4$<br>$y = -3.8x$ | 9. $y = -29x + 47$<br>$y = -12$ |
|-----------------------------------|-------------------------------------|---------------------------------|

Use matrices to solve each system for  $x$ ,  $y$ , and  $z$ . Round the values to the nearest hundredth.

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|---|---|
| 10. $3x + 5y - 6z = 22$<br>$2x - 8y + 7z = 15$<br>$-9x + y - 4z = 23$                       | 11. $5x - 3y = 12$<br>$2y + 4z = 29$<br>$6x + 2y - 7z = 43$                   |
| 12. $1.5x - 2.3y - 0.8z = 3.9$<br>$0.6x + 4.5y - 1.4z = -0.7$<br>$3.0x - 1.6y + 2.5z = 1.8$ | 13. $11x - 3y + 17z = 52$<br>$-8x + 10y - 5z = 28$<br>$19x - 13y + 18z = -12$ |

Find an equation of the parabola passing through each set of points. Round the coefficients to the nearest hundredth.

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|----------------------------------|-----------------------------------|
| 14. $(-2, 5), (1, 3), (3, 8)$    | 15. $(-3, -7), (-1, 4), (2, 5)$   |
| 16. $(-3, 10), (2, 11), (5, -4)$ | 17. $(3.2, -2), (4.1, 3), (5, 9)$ |

18. Josefina pledged different amounts for 3 friends, Carlos, Alvin, and Manchu, in a charity walkathon. The sum of her per-mile pledges was \$.70, and her pledge for Manchu equaled the sum of her other two pledges. Carlos, Alvin, and Manchu walked distances of 5.4 mi, 7.2 mi, and 8.6 mi, respectively, and Josefina's total contribution to the charity was \$5.08.

- Write a system of equations that models the situation.
  - Write the system of equations as a matrix equation.
  - Solve the system for Josefina's per-mile pledges.
19. **Open-ended Problem** Suppose you are given a system of two equations in two variables,  $x$  and  $y$ . Describe how you would decide which method to use to solve the system, based on the nature of the equations in the system.