EXAMPLE 2 on p. 204 for Exs. 22–28

AREA OF A TRIANGLE **Find the area of the triangle with the given vertices.**

22. $A(1, 5), B(4, 6), C(7, 3)$

23. $A(4, 2), B(4, 8), C(8, 5)$

24. $A(-4, 6), B(0, 3), C(6, 6)$

25. $A(-4, -4), B(-1, 2), C(2, -6)$

26. $A(5, -4), B(6, 3), C(8, -1)$

27. $A(-6, 1), B(-2, -6), C(0, 3)$

28. **TAKS REASONING** What is the area of the triangle with vertices $(-3, 4)$, $(6, 3)$, and $(2, -1)$?

Ⓐ 20 Ⓑ 26 Ⓒ 30 Ⓓ 40

EXAMPLES 3 and 4 on pp. 205–206 for Exs. 29–37

USING CRAMER'S RULE **Use Cramer's rule to solve the linear system.**

29. $3x + 5y = 3$
$-x + 2y = 10$

30. $2x - y = -2$
$x + 2y = 14$

31. $5x + y = -40$
$2x - 5y = 11$

32. $-x + y + z = -3$
$4x - y + 4z = -14$
$x + 2y - z = 9$

33. $-x - 2y + 4z = -28$
$x + y + 2z = -11$
$2x + y - 3z = 30$

34. $4x + y + 3z = 7$
$2x - 5y + 4z = -19$
$x - y + 2z = -2$

35. $5x - y - 2z = -6$
$x + 3y + 4z = 16$
$2x - 4y + z = -15$

36. $x + y + z = -8$
$3x - 3y + 2z = -21$
$-x + 2y - 2z = 11$

37. $3x - y + z = 25$
$-x + 2y - 3z = -17$
$x + y + z = 21$

38. **TAKS REASONING** Write a 2×2 matrix that has a determinant of 5.

39. **CHALLENGE** Let $A = \begin{bmatrix} 2 & -1 \\ 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 5 \\ -2 & -4 \end{bmatrix}$.

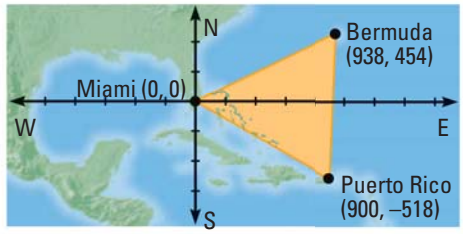
a. How is $\det AB$ related to $\det A$ and $\det B$?

b. How is $\det kA$ related to $\det A$ if k is a scalar? Give an algebraic justification for your answer.

PROBLEM SOLVING

EXAMPLE 2 on p. 204 for Exs. 40–41

40. **BERMUDA TRIANGLE** The Bermuda Triangle is a large triangular region in the Atlantic Ocean. The triangle is formed by imaginary lines connecting Bermuda, Puerto Rico, and Miami, Florida. (In the map, the coordinates are measured in miles.) Use a determinant to estimate the area of the Bermuda Triangle.



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41. **GARDENING** You are planning to turn a triangular region of your yard into a garden. The vertices of the triangle are $(0, 0)$, $(5, 2)$, and $(3, 6)$ where the coordinates are measured in feet. Find the area of the triangular region.

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EXAMPLES 3 and 4 on pp. 205–206 for Exs. 42–44

42. **TAKS REASONING** The attendance at a rock concert was 6700 people. The tickets for the concert cost \$40 for floor seats and \$25 for all other seats. The total income of ticket sales was \$185,500. Write a linear system that models this situation. Solve the system in three ways: using Cramer's rule, using the substitution method, and using the elimination method. *Compare* the methods, and explain which one you prefer in this situation.

= WORKED-OUT SOLUTIONS on p. WS1

= TAKS PRACTICE AND REASONING