MATH JOURNAL

5. Your principal announces that everyone should buy a permutation lock for their lockers. Your friend leans over to you and says, "Doesn't she mean a combination lock?" How would you answer your friend?

Guided Practice

Determine whether each situation involves a permutation or a combination.

6. choosing a class president, vice president, and secretary
7. four tennis players from a group of nine
8. eight toppings for ice cream

Evaluate each expression.

9. $C(4, 2)$
10. $C(7, 2)$
11. $C(3, 2) \cdot C(8, 3)$
12. $C(8, 5) \cdot C(7, 3)$

Solve each problem.

13. **Floral Design** A bucket at DeSantis Florists contains 8 red tulips, 5 white daisies, and 4 yellow tulips. How many bouquets could be created so that each bouquet has 2 red tulips, 1 white daisy, and 2 yellow tulips?
14. **Volleyball** How many starting volleyball teams of 6 members can be formed from a bench of 12 talented players?

EXERCISES

Practice

Determine whether each situation involves a permutation or a combination.

15. a classroom seating chart
16. finding the diagonals of a polygon
17. the batting order of the Pittsburgh Pirates
18. 10 books on a library shelf
19. a hand of five cards from a deck of 52 cards
20. a seven-person committee from your class
21. first, second, and third chairs for six clarinets in a band
22. six outfits chosen from fourteen outfits to be modeled

Evaluate each expression.

23. $C(5, 2)$
24. $C(10, 5)$
25. $C(8, 4)$
26. $C(24, 21)$
27. $C(12, 7)$
28. $C(10, 4)$
29. $C(12, 4) \cdot C(8, 3)$
30. $C(9,3) \cdot C(6, 2)$
31. $C(10, 4) \cdot C(5, 3)$
32. $C(8,2) \cdot C(5,1) \cdot C(4, 2)$

INVESTIGATION
Geometry

33. Suppose there are 8 points in a plane such that no three points are collinear. How many distinct triangles could be formed with 3 of these points as vertices?
34. A circle has nine randomly-placed points. In how many different ways can you form each polygon listed below?
    a. triangle
    b. octagon
    c. pentagon
    d. quadrilateral
    e. decagon
    f. hexagon