

6. Model the meaning of $P(4, 4)$ using colored counters or candies. What is its value?

Guided Practice

How many different ways can the letters of each word be arranged?

7. MATH 8. FUN
 9. SEE 10. PENCIL

Determine whether each arrangement is *linear* or *circular*. Then determine if it is also a *reflection* and find the number of arrangements.

11. batting order of a baseball team with 9 players
 12. a group of 6 children playing Ring Around The Rosy
 13. Pageants The Miss Teen USA pageant has fifty-two contestants. The judges choose the next Miss Teen USA and her three runners-up.
 a. Is order important? Why?
 b. Make a decision chart for this problem.
 c. In how many different ways can the next Miss Teen USA and her three runners-up be chosen?

EXERCISES

Practice How many different ways can the letters of each word be arranged?

14. LEVEL 15. FLORIDA 16. POP
 17. PARALLEL 18. ALASKA 19. FREE
 20. PEGGY 21. STUDY 22. MISSISSIPPI
 23. ALGEBRA 24. ESSENTIAL 25. REPETITION

Determine whether each arrangement is linear or circular. Then determine if it is also a reflection and find the number of arrangements.

26. ten beads on a necklace with a clasp
 27. a basketball huddle of 5 players
 28. six nickels in a circle on a table
 29. eight pizza toppings placed on a revolving tray
 30. seven shoppers in line at a checkout counter
 31. six charms on a bracelet with no clasp



Evaluate each expression.

32. $\frac{P(6, 4)}{P(5, 3)}$ 33. $\frac{P(6, 3)P(4, 2)}{P(5, 2)}$ 34. $\frac{P(12, 6)}{P(12, 3)P(6, 2)}$

Solve for n .

35. $P(n, 4) = 40[P(n - 1, 2)]$ 36. $P(n, 4) = 3[P(n, 3)]$
 37. $n[P(5, 3)] = P(7, 5)$ 38. $208P(n, 2) = P(16, 4)$

