

Name _____

Solve the problem. Clearly write $P_{n,r}$ or $C_{n,r}$ or use the multiplication principle.

1. Brittney wants to give three of her ten friends concert tickets. How many ways can she do this?
2. How many ways can Nicholas choose four of twelve people to receive a \$5 gift certificate to Starbucks?
3. Annette has 50 old records. She wants to donate thirty to charity. How many ways can she choose the 30 to give away?
4. Mrs. Jones has ten **different** prizes for her class. If she has thirty students, how many ways can she distribute the prizes?
5. Jill has twenty outfits but can only take five on vacation. How many ways can she choose the outfits to pack?
6. In how many ways can 12 people line up for concert tickets?
7. How many ways can a committee of 7 be selected from a club with 20 members?
8. How many ways can a club with 12 members choose a president and secretary?
9. Jill has purchased six **different** souvenir books while in Paris. How many ways can she choose to give the books as gifts to her mother, aunt, and sister?
10. One hundred horses are in a race, how many different outcomes are possible for the 1st, 2nd, and 3rd place finishers?
11. You are throwing a party but can only invite seven of your closest one hundred friends. How many ways can you choose your guests?
12. Your employer wants to award five employees with a \$100, \$200, \$300, \$400, or \$500 bonus. How many ways can five of the twenty-five employees be selected?
13. Your employer wants to award each of five employees with a \$500 bonus. How many ways can five of the twenty-five employees be selected?
14. At a show, only five of the two hundred attendees can sit in the front row. How many ways can the people be chosen to get a front row seat?
15. A travel club has forty members. A travel magazine needs ten experienced travelers to spend the night in a new hotel and write an evaluation. How many ways could ten members of this club be chosen?