NAME _____ DATE _____

# Practice 80

FOR USE WITH SECTION 12.4

**Simplify each expression.**

**1.** ${}_7C_4$ **2.** ${}_8C_2$ **3.** ${}_9C_5$ **4.** ${}_{10}C_6$

**5.** ${}_9C_4$ **6.** ${}_{11}C_7$ **7.** ${}_8C_3$ **8.** ${}_7C_0$

**9.** ${}_{15}C_1$ **10.** ${}_{12}C_6$ **11.** ${}_{10}C_3$ **12.** ${}_{14}C_9$

**13.** The debating club has 10 members and is to hold a debate in which the members are to be divided into two teams of 5 members each. In how many ways can the two teams be chosen?

**14.** A pizza shop has 9 different toppings for its pizzas. How many different pizzas can be made using 1, 2, or 3 toppings if no topping is used twice on one pizza?

**15.** A hand of 5 cards in which the cards are all from one *suit* (clubs, diamonds, hearts, or spades) is called a *flush*.

**a.** How many different kinds of flushes are possible if all the cards in the hand are spades?

**b.** How many different kinds of flushes are possible altogether?

**16. a.** In how many ways can a hand of 5 cards be dealt that contains 4 aces?

**b.** In how many ways can a hand of 5 cards be dealt that contains 4 cards of the same denomination (aces, tens, jacks, and so on)?

**17.** Suppose that, in a change purse, you have 6 dimes and 5 quarters, all distinguishable by having different mint dates. In how many ways can you choose two coins whose total value is the given amount?

**a.** \$.20 **b.** \$.50 **c.** \$.35

**18.** A restaurant offers 8 entrees and 7 side dishes. For a special price, a group can order 3 entrees and 4 side dishes. In how many ways can the choice be made?

**19. Writing** The combinations formula gives the same value for ${}_8C_3$ as it does for ${}_8C_5$. Conjecture a generalization of this fact and explain why it should be true, basing your explanation on the act of picking $r$ objects out of $n$ objects.