

LESSON **Practice B**
11-1 **Permutations and Combinations**

Use the Fundamental Counting Principle.

1. The soccer team is silk-screening T-shirts. They have 4 different colors of T-shirts and 2 different colors of ink. How many different T-shirts can be made using one ink color on a T-shirt? _____
2. A travel agent is offering a vacation package. Participants choose the type of tour, a meal plan, and a hotel class from the table below.

Tour	Meal	Hotel
Walking	Restaurant	4-Star
Boat	Picnic	3-Star
Bicycle		2-Star
		1-Star

How many different vacation packages are offered? _____

Evaluate.

3. $\frac{3!6!}{3!}$ _____
4. $\frac{10!}{7!}$ _____
5. $\frac{9! - 6!}{(9 - 6)!}$ _____

Solve.

6. In how many ways can the debate team choose a president and a secretary if there are 10 people on the team? _____
7. A teacher is passing out first-, second-, and third-place prizes for the best student actor in a production of *Hamlet*. If there are 14 students in the class, in how many different ways can the awards be presented? _____

Evaluate.

8. ${}_5P_4$ _____
9. ${}_3C_2$ _____
10. ${}_8P_3$ _____

Solve.

11. Mrs. Marshall has 11 boys and 14 girls in her kindergarten class this year.
 - a. In how many ways can she select 2 girls to pass out a snack? _____
 - b. In how many ways can she select 5 boys to pass out new books? _____
 - c. In how many ways can she select 3 students to carry papers to the office? _____