

(1-2) An object has an attribute from each list. Make a tree diagram that shows the number of different objects that can be created.

1)

| T-Shirts |
|--|
| Size: M, L, XL |
| Type: long-sleeved, short-sleeved |

2)

| Meal |
|--|
| Entree: chicken, fish, pasta |
| Side: corn, green beans, potato |

(3-4) Each event can occur in the given number of ways. Find the number of ways all of the events can occur.

3) Event A: 5 ways; Event B: 2 ways

4) Event A: 3 ways; Event B: 6 ways; Event C: 5 ways;
Event D: 2 ways

(5-7) For the given configuration, determine how many different license plates are possible if (a) digits and letters can be repeated, and (b) digits and letters cannot be repeated.

5) 2 letters followed by 5 digits

A.

6) 5 digits followed by 3 letters

A.

7) 6 letters

A.

B.

B.

B.

(8-11) Evaluate the expression.

8) $7!$

9) $1!$

10) $4!$

11) $12!$

(12-17) Find the number of permutations.

12) ${}_4P_4$

13) ${}_{10}P_1$

14) ${}_7P_4$

15) ${}_{13}P_8$

16) ${}_5P_0$

17) ${}_{11}P_4$

(18-21) Find the number of distinguishable permutations of the letters in the word.

18) TREE

19) PANAMA

20) HONOLULU

21) MISSISSIPPI