

11-1A Practice

Form G

Permutations and Combinations

1. How many 2-letter pairs of 1 vowel and 1 consonant can you make from the English alphabet? Consider “y” to be a consonant.
2. An ice cream shop offers 33 flavors of ice cream and 7 toppings. How many different sundaes can the shop make using 1 flavor and 1 topping?
3. A contest winner gets to choose 1 of 8 possible vacations and bring 1 of 10 friends with her. How many different ways could the contest winner select her prize?

Evaluate each expression.

4. $8!$

5. $\frac{11!}{9!}$

6. $6!4!$

7. $3(5!)$

8. $\frac{9!}{2!6!}$

12. An art gallery plans to display 7 sculptures in a single row.
 - a. How many different arrangements of the sculptures are possible?
 - b. If one sculpture is taken out of the show, how many different arrangements are possible?

Evaluate each expression.

17. ${}_5P_2$

18. ${}_7P_4$

19. ${}_8P_6$

20. ${}_6P_2$

21. In how many ways can four distinct positions for a relay race be assigned from a team of nine runners?

