

1. A pizza parlor offers 8 toppings. How many 4-topping pizzas could they put on their menu? Assume double toppings are not allowed.

Sequences

Sets

Why?

2. A combination lock consists of a dial with 45 numbers on it. To open the lock, you turn the dial to the right until you reach the first number, then to the left until you get to the second number, then to the right again to the third number. The numbers must be distinct. How many different combinations are possible?

Sequences

Sets

Why?

3. How many different anagrams are there of the word “troublemakings”?

Sequences

Sets

Why?

4. How many anagrams are there of “academia”?

Sequences

Sets

Why?

5. How many anagrams are there of “voodoo” that start with the letter “d”?

Sequences

Sets

Why?

6. How many different seating arrangements are possible for King Arthur and his 16 knights around their round table?

Sequences

Sets

Why?

7. In an attempt to clean up your room, you have purchased a new floating shelf to put some of your 18 books you have stacked in a corner. These books are all by different authors. The new book shelf is large enough to hold 14 of the books. How many ways can you select and arrange 14 of the 18 books on the shelf?

Sequences

Sets

Why?

8. How many ways can you arrange 14 of the 18 books on the shelf if you insist they must be arranged alphabetically by author?

Sequences

Sets

Why?