PC 12 LG 16 Worksheet (Permutations & Combinations)

1. How many different postal codes are possible if the first, third, and fifth characters are letters and the second, fourth, and sixth characters are non-zero digits?

2. How many different 7-digit phone numbers are possible if the first 3 digits are 746 or 748?

3. The Kelsey rugby team played 12 games this season. They won 6 games, lost 4 games, and tied 2 games. In how many different orders could this have occurred?

4. In a standard deck of 52 cards, how many different 4-card hands are there that contain at least three hearts?

5. There are 5 boys and 6 girls on a grad committee. In how many ways can a sub-committee of four people be selected if there must be at least one girl on the sub-committee?

6. How many different ways can you play lotto? 6-49 if you always use at least 2 of these numbers: 5, 7, 11, and 41?

7. In a standard deck of 52 cards, how many ways can you get a full house? (3 of a kind and 2 of a kind)

8. How many different ways can you arrange the letters of the word MISSISSIPPI?

9. If a 100 m race has 10 runners, how many different ways can the first 3 place medals be awarded?

10. How many different 3 number locker combinations (#'s are 0-9) are possible if the middle digit is even and the last digit is less than 4?

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11. In a standard deck of 52 cards, how many different 5-card hands can have two pair?

12. In a standard deck of 52 cards, how many different 5-card hands can have four of a kind?

13. How many different 4-digit odd numbers are there whose second digit is even?

14. 2 English books, 3 Chemistry books, and 4 Mathematics books are arranged on a shelf. If all the books are different, in how many ways can they be arranged on the shelf if all the same subject books must be grouped together?

15. 2 English books, 3 Chemistry books, and 4 Mathematics books are arranged on a shelf. If all the books are different, in how many ways can they be arranged on the shelf if only the Chemistry books must be grouped together?