



Practice

Precalculus - Q3HW3

Permutations and Combinations

ALL
Work
on Looseleaf!

1. A golf manufacturer makes irons with 7 different shaft lengths, 3 different grips, and 2 different club head materials. How many different combinations are offered?
2. A briefcase lock has 3 rotating cylinders, each containing 10 digits. How many numerical codes are possible?
3. How many 7-digit telephone numbers can be formed if the first digit cannot be 0 or 1?

Find each value.

4. $P(10, 7)$
5. $P(7, 7)$
6. $P(6, 3)$
7. $C(7, 2)$
8. $C(10, 4)$
9. $C(12, 4) \cdot C(8, 3)$
10. How many ways can the 4 call letters of a radio station be arranged if the first letter must be W or K and no letters can be repeated?
11. There are 5 different routes that a commuter can take from her home to her office. How many ways can she make a roundtrip if she uses different routes for coming and going?
12. How many committees of 5 students can be selected from a class of 25?
13. A box contains 12 black and 8 green marbles. How many ways can 3 black and 2 green marbles be chosen?
14. **Basketball** How many ways can a coach select a starting team of one center, two forwards, and two guards if the basketball team consists of three centers, five forwards, and three guards?



Probability and Odds

A kitchen drawer contains 7 forks, 4 spoons, and 5 knives. Three are selected at random. Find each probability.

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1. $P(3 \text{ forks})$
2. $P(2 \text{ forks, } 1 \text{ knife})$
3. $P(3 \text{ spoons})$
4. $P(1 \text{ fork, } 1 \text{ knife, } 1 \text{ spoon})$

A laundry bag contains 5 red, 9 blue, and 6 white socks. Two socks are selected at random. Find each probability.

5. $P(2 \text{ red})$
6. $P(2 \text{ blue})$
7. $P(1 \text{ red, } 1 \text{ blue})$
8. $P(1 \text{ red, } 1 \text{ white})$

Sharon has 8 mystery books and 9 science-fiction books. Four are selected at random. Find each probability.

9. $P(4 \text{ mystery books})$
10. $P(4 \text{ science-fiction books})$
11. $P(2 \text{ mysteries, } 2 \text{ science-fiction})$
12. $P(3 \text{ mysteries, } 1 \text{ science-fiction})$