

Permutations vs Combinations

State if each scenario involves a permutation or a combination.

- 1) A team of 8 basketball players needs to choose a captain and co-captain.
- 2) Rob and Mary are planning trips to nine countries this year. There are 13 countries they would like to visit. They are deciding which countries to skip.
- 3) The batting order for seven players on a 12 person team.
- 4) There are 45 applicants for three Computer Programmer positions.

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

- 5) Castel and Joe are planning trips to three countries this year. There are 7 countries they would like to visit. One trip will be one week long, another two days, and the other two weeks.
- 6) There are 110 people at a meeting. They each shake hands with everyone else. How many handshakes were there?
- 7) You are setting the combination on a three-digit lock. You want to use the numbers 123 but don't care what order they are in.
- 8) A group of 25 people are going to run a race. The top 8 finishers advance to the finals.
- 9) A team of 17 softball players needs to choose three players to refill the water cooler.
- 10) 5 out of 13 students will ride in a car instead of a van
- 11) The student body of 10 students wants to elect a president, vice president, secretary, and treasurer.
- 12) Selecting which seven players will be in the batting order on a 11 person team.
- 13) There are 15 applicants for four jobs: Computer Programmer, Software Tester, Manager, and Systems Engineer.
- 14) A group of 45 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

Permutations vs Combinations

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- 1) A team of 8 basketball players needs to choose a captain and co-captain.

Permutation

- 2) Rob and Mary are planning trips to nine countries this year. There are 13 countries they would like to visit. They are deciding which countries to skip.

Combination

- 3) The batting order for seven players on a 12 person team.

Permutation

- 4) There are 45 applicants for three Computer Programmer positions.

Combination

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

- 5) Castel and Joe are planning trips to three countries this year. There are 7 countries they would like to visit. One trip will be one week long, another two days, and the other two weeks.

Permutation; 210

- 6) There are 110 people at a meeting. They each shake hands with everyone else. How many handshakes were there?

Combination; 5,995

- 7) You are setting the combination on a three-digit lock. You want to use the numbers 123 but don't care what order they are in.

Permutation; 6

- 8) A group of 25 people are going to run a race. The top 8 finishers advance to the finals.

Combination; 1,081,575

- 9) A team of 17 softball players needs to choose three players to refill the water cooler.

Combination; 680

- 10) 5 out of 13 students will ride in a car instead of a van

Combination; 1,287

- 11) The student body of 10 students wants to elect a president, vice president, secretary, and treasurer.

Permutation; 5,040

- 12) Selecting which seven players will be in the batting order on a 11 person team.

Combination; 330

- 13) There are 15 applicants for four jobs: Computer Programmer, Software Tester, Manager, and Systems Engineer.

Permutation; 32,760

- 14) A group of 45 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

Permutation; 85,140