Probability: Combinations

Name: _____   **Date:** _____

Solve the following probability word problems.

(1) How many different four-person teams can be created from a classroom of twelve students?

(2) Four names are to be picked from a hat to be on a team. There are a total of fourteen names in the hat. How many different combinations of names can be picked?

(3) A painter was carrying six pails of different colored paint and dropped four of them, making a big mess. How many combinations of colors could he have spilled?

(4) There are eight different prizes hidden in a box, and you can pick four of them without looking. How many combinations of prizes are there?

(5) The baseball team has thirteen players, but only eight can be on the field at one time. How many different groups can be formed?

(6) There are eleven different marbles in a jar. How many ways can you take seven from the jar?

(7) Twelve people were trying to be one of the first five callers to a radio station. How many different sets of people could have succeeded?

(8) Fifteen insane shoppers were rushing to grab one of the last four Elmo toys. How many different sets of shoppers could have come away with a toy?

Probability: Combinations
A N S W E R   K E Y

Solve the following probability word problems.

(1) How many different four-person teams can be created from a classroom of twelve students?

$$nCk = \frac{12!}{4!(12-4)!} = 495$$

(2) Four names are to be picked from a hat to be on a team. There are a total of fourteen names in the hat. How many different combinations of names can be picked?

$$nCk = \frac{14!}{4!(14-4)!} = 1,001$$

(3) A painter was carrying six pails of different colored paint and dropped four of them, making a big mess. How many combinations of colors could he have spilled?

$$nCk = \frac{6!}{4!(6-4)!} = 15$$

(4) There are eight different prizes hidden in a box, and you can pick four of them without looking. How many combinations of prizes are there?

$$nCk = \frac{8!}{4!(8-4)!} = 70$$

(5) The baseball team has thirteen players, but only eight can be on the field at one time. How many different groups can be formed?

$$nCk = \frac{13!}{8!(13-8)!} = 1,287$$

(6) There are eleven different marbles in a jar. How many ways can you take seven from the jar?

$$nCk = \frac{11!}{7!(11-7)!} = 330$$

(7) Twelve people were trying to be one of the first five callers to a radio station. How many different sets of people could have succeeded?

$$nCk = \frac{12!}{5!(12-5)!} = 792$$

(8) Fifteen insane shoppers were rushing to grab one of the last four Elmo toys. How many different sets of shoppers could have come away with a toy?

$$nCk = \frac{15!}{4!(15-4)!} = 1,365$$