

ANSWER KEY

Permutations and Combinations

Each scenario involves a permutation or a combination. Find the number of possibilities. Match the problem letter to the solution on the next page to find the authors to each of the books.

A. A coach will choose the top 4 in the batting order from an 11 person team

$${}_{11}P_4 = 7920$$

I. A small elevator holds 4 people. A group of 11 people need to ride. They are deciding who will take the elevator first

$${}_{11}C_4 = 330$$

B. A council of 12 people needs to elect 2 representatives

$${}_{12}C_2 = 66$$

D. A basketball team of 12 players wants to elect a captain and a co-captain

$${}_{12}P_2 = 132$$

H. There are 8 people in a race. First place receives a blue ribbon and second place receives a red ribbon.

$${}_8P_2 = 56$$

G. Eight people run in a race. The first two finishers get in run the next weekend at the state meet.

$${}_8C_2 = 28$$

O. Jack has 5 homework assignments. He has time to do 2 of them.

$${}_5C_2 = 10$$

U. There are 5 applicants for the programmer and graphic designer.

$${}_5P_2 = 20$$

F. A team of 13 baseball players needs to choose 3 members to fill the water cooler.

$${}_{13}C_3 = 286$$

L. A team of 13 baseball players needs to choose a first baseman, second baseman and third baseman.

$${}_{13}P_3 = 1716$$

S. Tracie has 5 favorite movies. She is trying to decide what order to watch 4 of them

$${}_5P_4 = 120$$

T. Tracie has 5 favorite movies. She can only take 4 of them with her on vacation.

$${}_5C_4 = 5$$

R. Four out of seven children will ride a toboggan

$${}_7C_4 = 35$$

P. Seven children are sledding. Four children sit on the toboggan

$${}_7P_4 = 840$$

N. Student council has 30 members. They elect a secretary, president and historian.

$${}_{30}P_3 = 24360$$

W. 30 books are in the library on a certain topic. You may check out 3 books at a time.

$${}_{30}C_3 = 4060$$

Match the problem letter from the previous page to the solution to find the authors to each of the books.

Books and their authors:

Where have all the animals gone?

D A R I N D A B A R N
132 7920 35 330 24360 132 7920 66 7920 35 24360

Into the Volcano

H U G O F I R S T
56 20 28 10 286 330 35 120 5

How to Eat Cereal

P O O R A B O W L
840 10 10 35 7920 66 10 4060 1716