Answer on Question #46175 – Math – Combinatorics | Number Theory

Find the number of ways in which 8 different articles can be distributed among 7 boys, if each boy is to receive at least one article.

Solution:

The first article can be given away to any of the 7 boys, hence there are 7 ways to distribute first article.

The second article can be given away to any of the 7 boys, because the boy who got the first article can receive second article (we have one reserved article, because there are 8 articles and 7 boys).

The third article can be given away to any of the remaining 6 boys because the boy who got the first and a second article cannot receive third article.

Similarly the 4-5-6-7-8 can be given away to any of the remaining 5-4-3-2-1 boys

Hence total number of ways are $7 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 35280$

Answer: number of ways is equal to 35280.