

Stats /

Counting arrangements of objects that are not all distinct

Worked Examples:

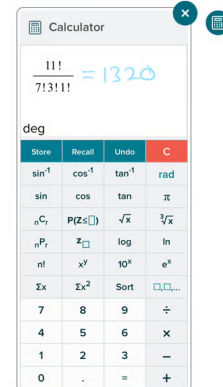
The reason you use factorials is if you had 11 cans to put on the shelf and 11 spots to put them in, in the first spot you could put 11 different cans in that first spot. Now you have one can on the shelf and for the second spot you could put 10 different cans in that spot. Now you have two cans on the shelf, so for the third spot you could put 9 different cans. And so on. So it ends up being $11! = 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Counting arrangements of objects that are not all distinct

Trey is arranging 11 cans of food in a row on a shelf. He has 7 cans of corn, 3 cans of peas, and 1 can of carrots. In how many distinct orders can the cans be arranged if two cans of the same food are considered identical (not distinct)?

$$\frac{\text{total}}{\text{each part}} = \frac{11!}{7!3!1!}$$

and do factorials on the end of every number



#Probability

#CountingAndProbability

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