

MGF /

Counting arrangements of objects that are not all distinct

Counting and Probability
 Counting arrangements of objects that are not all distinct

A sales assistant is hanging 11 sweaters on a rack. He has 5 brown sweaters, 3 gray sweaters, and 3 white sweaters. In how many distinct orders can the sweaters be arranged if two sweaters of the same color are considered identical (not distinct)?

x

↺

$$\text{total } 11! = 11 \cdot 10 \cdot 9 \cdot \dots$$

Brown 5!
 gray 3!
 white 3!

$$\frac{11!}{5!3!3!}$$

total
 different choices

use ALEKS calculator

12 total people
 8 Socialists
 3 Labour
 1 Green

$$\frac{12!}{8!3!1!}$$

use ALEKS calculator

7 letters in AVERAGE

2 A
 1 V
 2 E
 1 R
 1 G

$$\frac{7!}{2!2!1!1!1!}$$

total
 How many
 of each
 letter

Counting arrangements of objects that are not all distinct

A sales assistant is hanging 12 sweaters on a rack. He has 5 pink sweaters, 5 gray sweaters, and 2 white sweaters. In how many distinct orders can the sweaters be arranged if two sweaters of the same color are considered identical (not distinct)?

x

↺

$$\frac{\text{total!}}{\text{each!}} = \frac{12!}{5!5!2!}$$

Counting arrangements of objects that are not all distinct

Find the number of distinct arrangements of the 11 letters in REINTERPRET. Two of the same letter are considered identical (not distinct).

x

↺

REINTERPRET

R: 3 N: 1

$$\frac{\text{total!}}{\text{each!}} = \frac{11!}{3! 3! 1! 1! 2! 1!}$$

(you don't have to divide by 1!)

$$\frac{11!}{3! 3! 2!}$$

E: 3 T: 2
I: 1 P: 1

Do in ALEKS calculator!

×

Calculator

$$\frac{11!}{3!3!2!}$$

deg

Store	Recall	Undo	C
$\sin^{-1}$	$\cos^{-1}$	$\tan^{-1}$	rad
sin	cos	tan	π
${}_nC_r$	$P(Z \leq \square)$	$\sqrt{x}$	$\sqrt[3]{x}$
${}_nP_r$	$z\square$	log	ln
n!	x^y	10^x	e^x
Σx	Σx^2	Sort	$\square, \square, \dots$
7	8	9	÷
4	5	6	×
1	2	3	−
0	.	=	+

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