Problem 11

How many unique arrangements of 4 distinct beads can be made on a bracelet (ignoring the clasp)?

Hint_1: Arrangements are invariant to rotations.

Hint_2: Arrangements are invariant to flipping the bracelet over.

Answer

$\boxed{3}$

Explanation

There are 4! arrangements of the distinct beads in a row.

If the number of arrangements is invariant to rotations, and there are 4 possible rotations for each arrangement, we must divide by 4.

If the number of arrangements is also invariant to flipping (also flipping/rotations compositions do not ever result in an identity), we must also divide by 2

Thus, $\frac{4!}{4*2} = 3$