

Day 19

Fill in the Blank

Turn to your neighbors and take 3 minutes to discuss how one might fill in the following blank to form a true statement:

For a group G , $|\text{Inn}(G)| = 1$ if and only if _____.

Cosets

1. Inside Z_{12} , consider the subgroup $H = \{0, 4, 8\}$. Which of the following elements of Z_{12} defines a coset of H that's different from the coset of H defined by the others?

(A) 1

(B) 7

(C) 9

(D) None of the above (ie, all of the above define the same coset)

2. Inside D_n , let H be the subgroup of rotations. How many cosets of H are there?

(A) 1

(B) 2

(C) $n/2$

(D) None of the above