

Questions are numbered as in Gallian, p. 24 and p. 37.

0.24 (Generalized Euclid's Lemma) If p is a prime and p divides $a_1 a_2 \dots a_n$, prove that p divides a_i for some i .

0.30 Prove that for every integer n , we have $n^3 \equiv n \pmod{6}$.

1.6 In D_n (the dihedral group of order $2n$), explain geometrically why a reflection followed by a reflection must be a rotation.

1.8 In D_n , explain geometrically why a rotation and a reflection taken together in any order must be a reflection.