

Day 4 homework - Assigned 1/22 and due 1/31

Starred problems below are extra-credit for undergraduates and required for graduate students.

1. The inverse of an element  $g$  in a group is the unique element  $h$  so that  $gh = hg = e$ , where  $e$  is the identity. The element  $h$  is usually written as  $g^{-1}$ . Compute the inverse of each of the eight elements in  $D_4$ .
2. For which elements  $X$  in  $D_4$  is it true that  $HXH^{-1} = X^{-1}$ ?