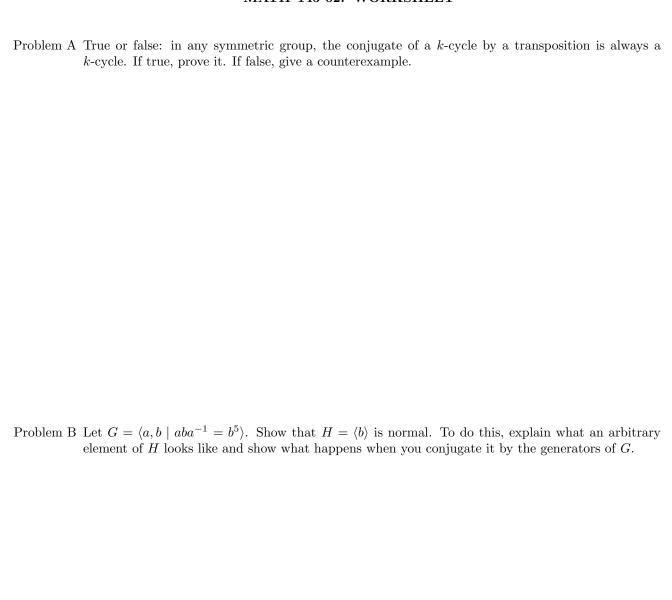
MATH 145-02: WORKSHEET



| Problem C | Consider the presentation | $D_{10} = \langle r, f \mid r^{10}$ | $= e, f^2 = e,$ | $frf = r^{-1}\rangle$. | Find the index | of $\langle r \rangle$ in D_{10} . | Is |
|-----------|---------------------------|-------------------------------------|-----------------|-------------------------|----------------|--------------------------------------|----|
| | it normal? | | | | | | |

Problem D In D_4 , let $H=\langle r^2\rangle$. The elements of D_4/H are cosets of the form aH. (a) Show that $rH=r^3H$.

- (b) Write down one representative of each distinct coset, making sure you get the right number of cosets overall.
 - (c) Using these, write down a multiplication table for the quotient group.
- (d) This is isomorphic to one of the groups we often discuss, so you know it by another name. Which one?