

SUPPLEMENTAL HOMEWORK PROBLEMS

3A: If $N \triangleleft G$, $[G : N]$ is finite, $H < G$, $|H|$ is finite, and the GCD

$$([G : N], |H|) = 1,$$

then $H < N$.

3B: If $N \triangleleft G$, $|N|$ is finite, $H < G$, $[G : H]$ is finite, and the GCD

$$(|N|, [G : H]) = 1,$$

then $N < H$.