

[12pts]

1. Let G be a group with $|G| = 105$.

(a) Prove that G contains either a normal Sylow 7-subgroup or a normal Sylow 5-subgroup.

(b) Prove that if a Sylow 3-subgroup of G is normal, then G is abelian.

[6pts]

2. Sec. 4.5: 32

Additional Problems:

Sec. 4.5: 6, 12, 13, 14, 32