Chris Haydnk 9/15

lecture 6, Exercise A

1a.

2. If G Abelian, then

$$hg = gh \quad \forall g, h \in G$$

So $Z(G) = \{g \in G \mid gh = hg \ \forall h \in G\}$

$$= G$$

$$C_G(A) = \{g \in G \mid g_a = ag \ \forall a \in A\}$$

We know every $g \in G$ commutes with every $h \in G$, and we know $A \subseteq G$, so g commutes with every element of A.

So $C_G(A) = G$

$N_G(A) = \{g \in G \mid gA = Ag\}$

Ndte $ga = gg \quad \forall g \in G, a \in A$

So $gA = Ag \quad \forall g \in G$

So $N_G(A) = G$