

MATH 649 HW 4

1. Problem 4 of section 3.5.

2. Problem 5 of section 3.5.

3. Problem 10 of section 3.5.

4. Let $A = \#Cn(A_E)$ and $B = \#\{\sigma \mid A_E \models \neg\sigma\}$.

(a) Show that A and B are Σ -definable.

(b) Show there is no Δ -definable $X \subseteq \omega$ such that $A \subseteq X$ and $X \cap B = \emptyset$.

Hint: Argue by contradiction and use the fact that every Δ -definable set is representable in A_E to contradict the Diagonalization Lemma for Δ -Definable Sets.