Homework 19

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Problem 7.8 from the text: Show that if $UNSAT \in BPNP$, then PH collapses to Σ_3^p.

Hint: Recall the proof that BPP is in Σ_2^p.

End of the proof:

$\Sigma_3^p = \Pi_3^p$

Therefore $PH = \Sigma_3^p$, since $\exists ... \forall \exists \forall \exists P = \exists ... \forall \Sigma_3^p = \exists ... \forall \Pi_3^p = \exists ... \Pi_3^p ... = \Pi_3^p = \Sigma_3^p$.