Subject 24-242. Sample qeustions from the seventh homework, due Thursday, May 6.

1. Take a sentence α so that α is provably equivalent to $(Bew_{PA}([\ulcorner\alpha\urcorner]) \vee Bew_{PA}([\ulcorner\sim\alpha\urcorner]))$. Is α decidable in PA? Is it true?

2. Show that, for each n, one can find an arithmetical formula τ_n such that, for each sentence ϕ, PA $\vdash ([\ulcorner\phi\urcorner] < [n] \rightarrow (\tau_n([\ulcorner\phi\urcorner]) \leftrightarrow \phi))$.