

80-311 Assignment 06

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1.1

$$\text{THM}(\varphi) \iff (\exists \Delta (\text{PRF}(\Delta, \varphi)))$$

1.2

Self-reference lemma:

If $\varphi(x)$ is any formula in the language of ZF with exactly the indicated free variable then there is a sentence ψ such that:

$$ZF \vdash (\psi \iff \varphi(\ulcorner \psi \urcorner))$$

Obtaining Godel's sentence G:

Let $\psi = G$ and $\varphi = \neg\text{THM}$. Then we substitute into the self reference lemma to obtain:

$$ZF \vdash (G \iff \neg\text{THM}(G))$$

(what is it?)

1.3

2

3
