Exercises

Chapter 8

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1. Redacted

Problem

(Q 8.1) Let

$$\begin{aligned}\Gamma \equiv\ & \mathbb{Z} : *_s, \mathbb{N}^+ : *_s \\ & \triangleright\ p\ (m, n, u) := \texttt{sorry} : \exists x, y : \mathbb{Z}.(m\ x + n\ y = 1) \\ & \triangleright\ \text{coprime}(m, n) := \texttt{sorry} : *_p \\ & \triangleright\ q\ (m, n) := \texttt{sorry} : \text{coprime}(m, n) \to \text{coprime}(n, s) \\ & \equiv n : \mathbb{N}^+, m : \mathbb{N}^+, u : \text{coprime}(m, n)\end{aligned}$$

Prove $\exists x, y : \mathbb{Z}.(n\ x + m\ y = 1)$ in Γ.

Solution.

Proof.

1. $q\ (m, n) : \text{coprime}(m, n) \to \text{coprime}(n, m)$
2. $q\ (m, n)\ u : \text{coprime}(n, m)$
3. $p\ (n, m, (q\ (m, n)\ u)) : \exists x, y : \mathbb{Z}.(n\ x + m\ y = 1)$

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