Sommersemester 2025 Homework 6

1. Questions

(1) Name one thing which you have found challenging in the class this week and one thing you think you understood well.
(2) Prove Corollary 5.9 using Theorem 5.8.

These are the theorems you proved/stated in the class.

Theorem 5.8. Let n be a positive integer such that $n = N^2m$ where m is a square free integer. Then, n is a sum of two squares if and only if m contains no prime divisor of the form $4k + 3$.

Corollary 5.9. A positive integer is a sum of two squares if and only if its prime factors of the form $4k + 3$ occur to an even power.