

Math 105: Homework 8

Due December 03, 2025

1. Find all integer solutions to $x^2 - 3xy + 2y^2 = 9$.
2. Use Fermat's method of infinite descent to show that the equation $x^4 - y^4 = z^2$ has no positive integer solutions.
3. Compute the following Legendre symbols:
 - (a) $\left(\frac{4}{17}\right)$
 - (b) $\left(\frac{13}{17}\right)$
 - (c) $\left(\frac{5}{19}\right)$