

Solution to March 2004 M⁶ Problem

Clearly, $x^2 - 2y^2 = 1$ with x and y being primes implies that $x > 2$. Recast the equation as $(x - 1)(x + 1) = 2y^2$. Both $x - 1$ and $x + 1$ must be even. Then, y is a prime number divisible by 2. This means that $y = 2$ and $x = 3$.