HOMEWORK 10
MATH-UA 0248-001 THEORY OF NUMBERS
due on Dec, 7, 2020

1. Determine the infinite continued fraction representation of $\sqrt{26}$.
2. Find a solution of the equation $x^2 - 41y^2 = 1$. (Hint: $\sqrt{41} = [6, \overline{2, 2, 12}]$.)
3. Establish that if x_0, y_0 is a solution of the equation $x^2 - dy^2 = -1$, then $x = 2x_0^2 + 1, y = 2x_0y_0$ satisfies $x^2 - dy^2 = 1$.
4. If d is divisible by a prime $p \equiv 3 \pmod 4$, show that the equation $x^2 - dy^2 = -1$ has no solution.