Übungen zu Vertiefung Elementare Zahlentheorie

WS 2010/2011, Blatt 2

Exercise 5. For the following linear equations, determine all integer solutions:

$$\text{(a)} \quad 238x - 35y = 14, \quad \text{(b)} \quad 238x - 35y = 16.$$

Exercise 6. For the following linear equations, determine all integer solutions (x, y) with $x \geq 0, y \geq 0$:

$$\text{(a)} \quad 21x + 15y = 75, \quad \text{(b)} \quad 21x + 15y = 45.$$

Exercise 7. Let n be an integer ≥ 0 and p a prime divisor of $n! + 1$. Prove that $p > n$.

Exercise 8. Prove: If $2^n - 1$ (n an integer ≥ 1) is a prime number, then n is a prime number.
(*Hint:* Exercise 4.)

Abgabe bis Freitag, 29.10.2010, 12:00 Uhr