Writing Assignment 3: Due Wednesday, February 12

Problem 1: Define $f\colon \mathbb{Z} \to \mathbb{Z}^2$ by letting $f(n) = (3n^2 - 77, 5n + 6)$. Is f injective? Explain.

Problem 2: Define $f\colon \mathbb{R}^2 \to \mathbb{R}$ by letting $f((x, y)) = x^2 - 3y - 4$. Is f surjective? Explain.

Problem 3: Define $f\colon \mathbb{Z}^2 \to \mathbb{Z}$ by letting $f((x, y)) = 12x + 20y$. Show that $\text{range}(f) = \{4k : k \in \mathbb{Z}\}$.