Exercise 6.26. [20Y] *(Proposed on 2022-12) Calculate supremum and infimum of the following sets (where n, m are integers).*

$$\left\{\frac{mn}{m^2+n^2} : n, m \geq 1\right\} \quad , \quad \left\{\frac{mn}{m+n} : n, m \geq 1\right\}$$

$$\{2^n + 2^m : n, m \in \mathbb{N}\} \quad , \quad \{2^n + 2^m : n, m \in \mathbb{Z}\}$$

$$\left\{\frac{m^2-2}{n} : n, m \in \mathbb{Z}, n \neq 0\right\} \quad , \quad \left\{\frac{m+1}{m^2} : m \in \mathbb{Z}, m \neq 0\right\}$$